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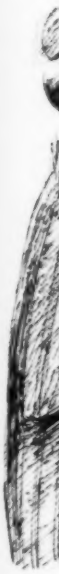

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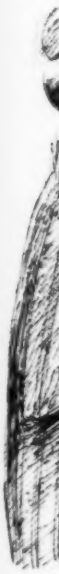


"This cream contains the yolk from the egg of the duckbill platypus!"

Keeping Posted

The Status of Medicine

The recent great strides which have been made in the cure and control of various serious diseases, as well as the disease problems which remain to be overcome, were pointed out last month by Dr. Leonard A. Scheele, former Surgeon General of the U. S. Public Health Service, and now president of Warner-Chilcott Laboratories.

Tuberculosis, which 75 years ago accounted for 200 deaths per 100,000 people, accounted for only 10 deaths per 100,000 in 1954—a reduction of 95 per cent. Yet in 1946 there was no streptomycin, no para-aminosalicylic acid, and no isoniazid for treatment of the disease. In 1955 it was discovered that isoniazid is remarkably effective in preventing tuberculosis in animals. Tests are now being made to see if this discovery is a means of preventing serious complications of tuberculosis among children who have already acquired the infection.

In terms of prevention, we now have an effective poliomyelitis vaccine capable of reducing the annual toll of paralytic cases by 75 per cent or more. In fact we have a real opportunity to reduce polio to a negligible level, if we will just go forward this Winter and early next year with continuation of a vigorous effort to extend the vaccination program which has been so successful during the last season. You know that during the so-called disease year for polio in 1956, January through September, there were only 11,690 cases compared with 22,982 in 1955. No child who had the full course of three injections has died from polio. Retrolental fibroplasis, a leading cause of blindness in infants, can be prevented by controlled use of oxygen in the care of premature babies. Prevention of rheumatic fever is possible through the use of antibiotics, with a consequent reduction in the cases of rheumatic heart disease. Fluoridation of public water supplies makes possible the prevention of at least 60 per cent of tooth decay in children.

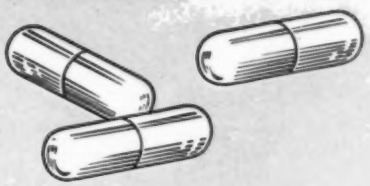
In 1953, 1900 to 1953, the average life expectancy at birth in the United States increased from 47.3 to 68.8 years—a gain of 21½ years. Five of those years were added since 1943. The general death has declined 12 per cent in the past ten years. The drop in death rates from certain specific diseases has been much more spectacular. For example, the tuberculosis death rate has declined by 24 per cent in the years 1953-1955. In the past 10 years, the mortality rate from influenza and pneumonia has declined by 77 per cent; from syphilis, 56 per cent; from nephritis and other kidney diseases, 40 per cent. But as we conquer many diseases of early life, more people are living longer to those ages when they are most likely to have cancer, heart disease, and other chronic illnesses.

Nearly 800,000 Americans, representing all age groups, died of heart and vascular disease alone in 1954. Another 237,000 died of cancer. More than half a million new cancer cases are reported annually. One in every 10 children born in the United States today will be confined to a mental institution at some time of his life. It is estimated that about 10 million persons suffer arthritis or other rheumatic diseases; nine million from neurological diseases, blindness, and other sensory disorders.

For the most part, the splendid medical progress of the past 10 years has touched only what we might call the outward and visible signs of these catastrophic causes of death and disability. In so far as scientific understanding is concerned, we may liken the major chronic diseases, and many viral diseases to icebergs. One tenth of the volume of the iceberg is above water—and can be seen and dealt with. The remaining 90 per cent of the bulk is hidden.

Advances in medicine have not only changed the nature of hospital services in many instances, but have also greatly increased their costs. Modern radiation equipment alone for the treatment of cancer, for example, may cost as much as $1 million. Bone banks, cornea banks, and artery banks are becoming com-

For Your Formulation of CAPSULES



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Magnesium Hydroxide
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monplace adjuncts in large hospitals. New Types of anesthesia also call for new equipment. It is impossible to put a firm pricemark on any one of the modern technical services of a hospital, since their operation requires not only costly equipment, but also the full-time attention of highly trained professional and technical personnel.

T.G.A. Scientific Program

The Scientific Section of the Toilet Goods Association will hold its 24th meeting December 12 in the Sert Room of the Waldorf-Astoria Hotel, New York. The papers to be presented at this meeting are: 1) Zirconium Oxychloride—A New Ingredient for Antiperspirants, by E. G. Helton, A.B., E. W. Daley, M.S., and J. C. Ervin, Ch.E., the Toilet Goods Division, The Procter & Gamble Company; 2) A Method for Determining the Waving Efficiency of Cold Permanent Wave Lotions, by Donald H. Kirby, Research and Development Laboratory, John H. Breck, Inc.; 3) Dermatological Evaluation of Perfumes of Low Sensitizing Index, by Raymond A. Osbourn, M.D., Department of Dermatology, Georgetown University Medical Center, Washington, D. C., Thomas W. Tusing, M.D., Hazleton Laboratories, Falls Church, Va., Francis P. Combs, M.D., New York, and Edward P. Morrish, M.S., Firmenich Incorporated, New York; 4) A Discussion of the Functions of a cosmetic Research Department, by Joseph Kalish, Ph.D., Technical Editor, Drug and Cosmetic Industry; 5) Dispersion of Pigments in Lipstick, by Mary Jacovics, Avon Products of Canada, Ltd.; 6) Gas Chromatography—Some Applications in the Cosmetic Industry, by Nathaniel Brenner, Applications Engineer, The Perkins-Elmer Corporation.

Drug Wholesaling for 1954

At the end of 1954 there were 2,801 establishments in continental United States, with one or more paid employees, primarily engaged in the selling of drugs and sundries at wholesale, according to the 1954 Census of Business. The 2,801 establishments included 392 general-line drug wholesalers, with sales of $1.3 billion, up from a 1948 figure of 302, and up 50.8 per cent in sales volume from 1948. The balance of the wholesalers were 2,409 specialty-line wholesalers with sales of $901 million. Sales of retail druggists increased 30.9 per cent in 1954 over 1948.

States recording the largest dollar volume in drug wholesaling in 1954 were New York, California, Pennsylvania, Texas, Ohio, and Illinois in the order named, each with sales of $68 million or more. Together these six states reported sales totaling $536 million, or 42.1 per cent of the nation's total. The 392 general-line drug wholesalers provided employment for 26,293 persons on a payroll basis in mid-November 1954, an increase of 19.5 per cent over 1948 Annual payroll amounted to $105 million, an increase of 60 per cent over 1948. In addition to the 26,293 paid employees, 35 proprietor-owners of unincorporated business were actively engaged in the trade, a total of 26,328 persons. Of this number 4,456 were engaged in selling.

Specialty-line drug wholesalers includes those primarily handling proprietary medicines, toilet preparations, and articles such as perfume, cosmetics, powders, shaving preparations, toilet soap, dentifrices, combs, brushes, mirrors and related items, as well as merchants selling such items as medical glass, rubber goods, bandages, antiseptics, drugs, and related products.

Cosmetic Chemists Session

The program for the Scientific Session of the annual December meeting of the Society of Cosmetic Chemists, to be held December 13, at the Hotel Commodore, New York, lists the following papers:

1) New Developments in Glass Containers, Dr. William R. Prindle, Hazel-Atlas Glass Company; 2) Chemical Applications for Ultrasonic Waves, Professor E. B. Yeager, Western Reserve University; 3) Cosmetic Knowledge Through Instrumental Techniques, Dr. E. G. McDonough, D. A. Mackay, and M. Berdick, Evans Research and Development Corporation; 4) Gas Chromatographic Analysis of Aerosol Products, M. J. Root, G. Barr & Company; 5) The Electron Microscope—A Tool for the Study of Hair Fibers, Dr. W. W. Courchene, Procter & Gamble Company; 6) The Interference of Nonionic Emulsifiers with Preservatives III, M. G. de Navarre and Harold Bailey, Cosmetic Laboratories, Inc.; 7) Gas Partition Chromatography, Application to Essential Oils and Other Volatile Materials, Dr. C. L. Teitelbaum, Battelle Memorial Institute.

FTC Cites Dry-Tabs

Gary Pharmacal Company, Chicago, is charged by the Federal Trade Commission with false advertising in claiming that Dry-Tabs are a new discovery for correction of bed-wetting in all cases. The Commission states that the product is effective neither in bed-wetting nor in correcting the habit in all cases. It is not a new discovery, FTC says, and is of no value except in cases of functional bed-wetting not involving organic defects of diseases.

Aerosol Shave Patent Upheld

Carter Products, Inc., has clear title to the patent rights in this country for aerosol shaving creams. This became clear last month when the U. S. Supreme Court rejected an appeal of Colgate-Palmolive Company to review the decision of the U. S. Court of Appeals which had affirmed the U. S. District Court which had held that Colgate-Palmolive Company had infringed the valid patent of Carter. Colgate had contended that Carter had merely combined known ingredients to perform a known purpose and that therefore the patent was invalid. Colgate-Palmolive contended that the patent would enable Carter to "monopolize the use of pressure packaging by the soap industry."

Carter Must Drop "Liver"

Once again the Federal Trade Commission has ordered the word "liver" dropped from the brand name of "Carter's Little Liver Pills." It will be recalled that in March 1951, the Commission issued an order con-

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taining this provision, but the order was subsequently set aside by the United States Court of Appeals for the Ninth Circuit. Upon appeal to the United Supreme Court, the Commission was authorized to open the proceedings for further evidence and to issue a new order. Thus, the present order, issued last month, is the result of the complaint originally brought by the Commission in May 1943.

The Commission ruled that the pills have "no effect beyond that of an ordinary laxative." Ruling out claims that Carter's Pills are an effective remedy for liver troubles, billiousness, or such ailments as headaches, bad complexion, and "worn-out" feeling, the Commission states that the pills are a combination of two ingredients, podophyllum and aloes, and when used as directed, act as a laxative. "Contrary to advertising," said the Commission, "the pills are not a cure for constipation but only a temporary relieving agent. In fact the pills tend to aggravate the spasmic type of constipation."

Some claims prohibited by the order are 1) the pills represent a fundamental principle of nature in self-treatment; 2) they do not contain strong medicines and are unqualifiedly safe; 3) they are an effective treatment for sluggish liver and will cause bile to flow freely and aid the digestive process; they will induce a state of "bounce," vigor, or well-being (the order prohibits this claim except in instances where lack of these things is due solely to constipation."

The order also prohibits claims that the pills will help when a person feels "down-and-out," "depressed," "sluggish," "irritable," "sullen," etc., and that the pills have any value in treating headaches, ugly complexion, bad breath, coated tongue, or a bad taste in the mouth. Also prohibited is the claim that the pills will so affect the bile as to prevent or overcome discomforts caused by overindulgence in food or other pleasures.

The Commission states that in making its findings, it considered extensive scientific opinions, much of which indicated that Carter's Pills have no effect in curing constipation or in promoting a flow of bile or aiding in the digestive process.

In answer to Carter's argument that the medical opinions in the record are conflicting, thereby precluding informed determinations of the issues and reflecting a scientific controversy requiring dismissal, the decision said:

"It is true that the results of experiments reported in the scientific literature dealing with effects exerted by aloes and podophyllum have presented some conflict. However, the scientific studies received in support of the charges of the complaint relate in the aggregate to a wide range of experimental conditions and constitute highly probative evidence as to the limitations of the respondent's preparation."

Much of the scientific testing in the proceeding dealt with the question of the effect of the pills on the flow of bile. The extensiveness of these tests is typified by a series of experiments on dogs conducted by one scientist, points out the Commission.

A surgical opening was made from the outside of the body of each dog to the bile duct, permitting the scientist to collect billiary fluid prior to its intermingling with digesting food and other secretions. After a period of measurement and analysis of the bile to establish a standard or control, a mixture of aloes and podophyllum in the ratio contained in Carter's Pills was administered. Analysis showed no significant increase in bile volume due to the administration of these elements, said the Commission.

The Commission ruled that the effect on intestinal motility caused by the pills does not significantly increase bile flow and that "the greater weight of scientific evidence . . . shows that there is no casual relationship between constipation and bile flow." Even assuming an increase in bile flow, the Commission said, "no utilitarian purpose would be served thereby."

Cosmetic Symposium

A Symposium on Cosmetics will be presented by the Committee on Cosmetics of the American Medical Association before the Pharmacy Section of the American Association for the Advancement of Science, Penn Top North, Statler Hotel, New York, on December 27, at 8:00 P.M. The program follows:

Introductory Comments by Section Chairman Dr. John E. Christian, Purdue University, Moderator; The New Role of Cosmetics, Veronica L. Conley, American Medical Association; The Scientific Formulation of Cosmetics, Dr. Paul G. I. Lauffer, George W. Luft Company; The Essentials of Skin Cleansing, Dr. Raymond R. Suskind, the Kettering Institute; The Control of Axillary Sweating and Body Odors, Dr. Marion B. Sulzberger and Dr. Franz Herrmann; The Present Status of Pigment Forming Drugs, Dr. Aaron B. Lerner, Yale University; Toxicity Problems of Cosmetics, Bernard E. Conley, American Medical Association.

The Discussants will be Dr. Irvin H. Blank, Boston; Dr. Stephen Rothman, Chicago; Dr. Carl Nelson, New York, and Dr. Howard T. Behrman, New York.

Tait Replaces Mason in FTC

Edward Thomas Tait of Pennsylvania was sworn in November 2 as a member of the Federal Trade Commission to succeed the well-known Lowell B. Mason, a Republican who was appointed by President Truman. Mr. Tait, likewise a Republican, is 36 years old and has been serving as Special Assistant to President Eisenhower. Prior to that assignment, Mr. Tait was the Executive Director of the Securities and Exchange Commission.

Health News Institute Officials

Formal incorporation of the Health News Institute and the appointment of officers took place last month at the first meeting of the Board of Trustees which was held in New York. George F. Smith, president of Johnson & Johnson, is chairman of the Board of Trustees; Kenneth F. Valentine, president of Pitman-Moore Company, is president of the Institute; Chet Shaw is executive vice-president; Dr. J. Mark Hiebert, president of Sterling Drug, Inc., is vice-president; S. Barksdale Penick, president of S. B. Penick & Company, is treasurer; and John K. Worley, of Youngjohn, Worley and Brown, is secretary.

The Board of Trustees includes representation of association contributors. The first six trustees are Messrs.

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Smith and Penick; Dr. Ernest Volwiler, president of Abbott Laboratories, representing the American Drug Manufacturers Association; Mr. Valentine, representing the American Pharmaceutical Manufacturers Association; Dr. Hiebert representing the Proprietary Association; and Dr. John W. Dargavel representing the National Association of Retail Druggists. Other trustees are to be announced. Other association contributors are the American Pharmaceutical Association, the National Association of Chain Drug Stores, and the Federal Wholesale Druggists Association.
Other organizations such as the National Wholesale Druggists Association, the American Medical Association, and the American Hospital Association will make their decisions later, according to Mr. Shaw.

A.M.A. Dangerous Chemical Law

The Committee on Toxicology of the American Medical Association has been authorized by the AMA Board of Trustees to draft a "model" law on labeling of many possibly harmful chemicals not now regulated as a first step toward protecting the public from potentially dangerous household and commercial chemicals. It is felt that such a law would serve as a guide for writing regulations which would require labels to show such information as the product's contents, its possible dangers, directions for safe use, and first aid instructions. The committee's secretary, Bernard E. Conley, estimates that there are at least a quarter of a million different trade-name substances now on the market. Without proper labeling, physicians and the public cannot possibly know what harmful materials they may contain or how to treat poisoning from them. The proposed law is intended to reduce careless and ignorant handling and storage of chemicals in the home, in small businesses, and in other areas where control of exposure to the chemicals is not as efficient as it is in the manufacturing process.

Vitamin Foundation Reports

Since its organization in 1946, the National Vitamin Foundation has made grants for research work in the field of nutrition totalling more than a million dollars. During 1955 alone, appropriations in support of research and for scientific and medical education purposes totalled $185,079, according to the annual report of the Foundation issued last month. "From 1946 to 1955, inclusive, the Foundation appropriated $1,019,646 for payments of grants-in-aid research," said the report.
"Foundation grants-in-aid of research and fellowships have been given for work in institutions located in twenty-four states of the U. S., the District of Columbia, and in four foreign countries. Six states, California, Illinois, New York, Ohio, Pennsylvania, and Tennessee received more than $50,000 each, and together received 73 per cent of the research funds granted by the twenty-four states. The same six states contain approximately 52 per cent of the population of the twenty-four states receiving grants, which in turn, account for about 72 per cent of the total population of the United States," the report states.
A review of the report shows that medical investigation supported by the Foundation is helping to open new avenues of treatment in such widely diverse conditions as obesity, emotion stress, cancer, pregnancy, chemical poisoning, and diseases of the aged.

Vick Posts New Sales Record

Vick Chemical Company hung up a new record for sales during the fiscal year ended June 30, when its volume totaled $83.6 million, up $11.0 million from the previous year's $72.6 million. Vick's sales have consistently exceeded those of the previous year for the last 17 years, with the exception of the 1947-48 fiscal year when there was a drop of less than one per cent. Against the previous year's high of $6.5 million, consolidated net earnings (excluding unremitted foreign earnings) reached a peak of $7 million for 1955-56. Earnings including unremitted foreign earnings were up 13 per cent to $7.8 million, over last year's $6.9 million.

Stop Payments to United-Whelan

Two of the companies recently charged by the Federal Trade Commission with compensating some, but not all, of its customers for radio and television advertising, have signed consent orders which specifically prohibit the companies from paying compensation to any customer for radio or television advertising furnished by that customer unless the payment is made available on proportionately equal terms to all the customer's competitors. The charges were brought because of payments to United-Whelan Stores Corporation for participation in the television shows which it sponsored. The companies signing the consent decrees are Bymart-Tintair, Inc., and Johnson & Johnson.

Leppart Named ADMA V.P.

John C. Leppart of Squibb was recently elected a vice-president of the American Drug Manufacturers Association succeeding the late James J. Kerrigan. The vacancy caused by Mr. Leppart's election was filled by the election of John T. Connor, president of Merck & Co. to the Executive Committee.

To Rid New York of Polio

The New York City Department of Health has drawn up a plan by means of which New York City is to be rid of poliomyelitis. A key point in the campaign involves the inoculation of 2,350,000 New Yorkers 20 to 40 years old with Salk polio shots before the beginning of the 1957 polio season. The Health Department noted that the number of polio cases this year had dropped 81 per cent below last year's total, and 76 per cent below a ten-year average. The department said that there had been 129 cases this year, as of October 9, compared with 673 at the same time last year, and an average of 529 cases for the ten-year period 1946-1955.
"We cannot yet attribute the decrease in cases this year to the use of Salk vaccine," said Dr. Leona Baumgartner, Commissioner of Health. "It is sound, however, to point out that in 1955 in New York City we found there were four times as many cases of paralytic polio among unvaccinated children as among

vaccinated youngsters. We do know that Salk vaccine has helped prevent cases of paralytic polio; what we do not know is exactly how many cases have been prevented by our use of it."

A Lot of Tranquillity

It is reported that meprobamate—the tranquilizer sold under the names of Miltown and Equanil—is being produced at the rate of one billion tablets a year. Since these drugs are packaged 50 tablets to a bottle, and the price of each bottle to the consumer is suggested at no less than $5.00, this makes a total value of consumer outlay for this of approximately $100,000,000 per year. The sale volume to the drug retailers for this amount of the drug would be about $60,000,000, and the sales volume at manufacturers' levels would be in the neighborhood of $48 to $50.

New Arner Laboratory

A new and much larger and most modern analytical control laboratory now occupy the entire third floor of the new main office building of the Arner Co., at 154 Swan Street, Buffalo, N. Y. The 10,000 square foot laboratory more than doubles the size of the previous facilities directly across the street. The product research laboratory, which remains at 303 Michigan Avenue, will be enlarged at a later date. The new laboratory is divided into production analytical control, analytical research, physical testing, and microbiological research. Equipment employed uses spectrophotometric control techniques in the ultra violet light, visible and infra red regions; for potentiometric titrations, and for chromatographic and fluorphotometric methods.

Sedative Prescriptions Lagging

Prescription sales for sedatives is lagging behind total prescription sales, according to Modern Medicine Topics. It is said that: "the steady upward trend in retail prescription sales volume of sedative preparations has continued at about the same rate from 1949 to the present time. This paralleled the trend for all prescriptions until 1954 when the latter pulled ahead and left the sedatives substantially behind."

Reasons given for this lagging of sedative sales are rauwolfia drugs, ataractic drugs, or tranquilizers, which produce relaxation without undue sedation, and lack of promotion because manufacturers more or less took their markets for granted.

Parke, Davis to Install Univac

Parke, Davis & Company has planned to install Univac, the electronic data processing system or "electronic brain" which can execute 7,000 instructions per second. Installation of Univac will not be made before July 1957, according to Charles A. Erdmann, assistant controller of P.D. A group of 17 P.D. staff members from various departments has begun an intensive training program designed to school them in the operation of the Remington-Rand Univac system. The trainees represent such P.D. departments as sales, inventory control, personnel, production, engineering, industrial engineering, quality control, and controller.

The special group will study all potentialities of Univac, its operation, and how it can best be applied to managerial operations at P.D. Univac will be utilized in "all areas of clerical operation and is designed to provide management with more timely and more accurate information in various areas of managerial responsibility," said Mr. Erdmann.

When fully installed, Univac and its component controls will occupy more than 3,000 square feet of floor space. The entire unit, which weighs over nine tons, will be enclosed in an air-conditioned room for maximum operational efficiency.

FTC Radio and TV Monitoring

A new investigative unit to monitor radio and television advertising for false and misleading claims has been established within the Federal Trade Commission. The unit is headed by T. Harold Scott, veteran FTC attorney, who becomes legal adviser and assistant for radio and television to the Chief Project Attorney, Bureau of Investigation. Attorneys in the Commission's eight branch offices will assist the new unit by monitoring radio and TV programs on a part-time basis—in addition to their other investigative work—in New York, Chicago, New Orleans, Cleveland, Kansas City, San Francisco, Seattle, and Washington, D. C.

Prior to creation of the new unit, four FTC attorneys had comprised a task force whose function was to examine scripts and continuities on a scientific sampling basis, submitted by radio and TV stations. This material was scanned principally for the purpose of checking on compliance with existing FTC orders and trade practice rules, although new violations of the law also were reported to the Commission's Bureau of Investigation. This task force is now being merged into the new unit which will expand the monitoring to include spot-checking of advertising at the time of its broadcast.

Al-Fal-Fay Seed and Vitamin Health Food, consisting of untreated alfalfa seed and vitamin tablets composed of alfalfa leafmeal, cannot be advertised as a cure for arthritis, according to an order issued by an FTC hearing examiner against The Brotherhood of Good Samaritans to Victims of Arthritis. The examiner's order specifically prohibits the following claims: 1) That the product will have any therapeutic value in treating arthritis or that they will cure this ailment; 2) That these products will afford relief from aches, pains, and discomforts due to arthritis, or prevent recurrence of attacks.

Minks and Vitamins

Results of a survey of mink breeders in 22 states and five Canadian provinces is said to prove that the reason why American women have the most beautiful mink coats in the world is vitamins which are fed to the minks to give the animals more beautiful and more durable pelts. The survey, conducted by Ellis & Kelly Associates, and made to get helpful information for U.S. mink ranchers who now do an annual business of $60 million, showed that more than three-quarters of the mink breeders polled add vitamin supplements to the diet of their minks.

Beauty from WITHIN

by L. Stambovsky

EWING GALLOWAY STUDIO

Nothing could be further from the truth than that time worn and fictitious adage, "beauty is but skin deep." A serious consideration of this more or less indefinable force will reveal that primarily deep and complex physiologic mechanisms are responsible for its absence or presence. There is no denial that facial symmetry does make an appreciable contribution in the sum total of sex appeal but without buoyant health the attraction is highly transient. As is well known, many females who might be classified as being beautiful, fail to exert other than a short-lived allure for the male. In most such instances, these women are in a state of minimum or even sub-clinical illness. Without optimum over-all physiologic function, generally speaking, there is no permanency in the relationship between the sexes. Inversely, thousands of girls with poor or average facial qualities are eminently successful simply because they possess an inner magnetism. We would not be far amiss to say that sex appeal or whatever term one wishes to use for the affinity between the opposite sexes, is both an invisible and visible manifestation of maximum physical and usually coincidently, mental vitality.

A logical question at this point would be, "why does this instrumentality called beauty set into motion such a powerful attraction for the male?" Nature in her fantastically clever and subtle design wishes only those in top physical condition to procreate. Obviously such selection will insure the continuation of a posterity with maximum physical qualifications. Since the healthy female radiates a greater allure for the male than her less fortunate sister, she will be chosen as a mate simply or basically because she is better equipped for the vital duty of procreation. Herein, even in civilization is a classic example of how nature attempts to insure the maintenance of one of her oldest and universal dictates, "only the fit shall survive." In our complex society this credo has been substantially weakened or abrogated. However to a considerable extent the scheme still operates notwithstanding the fact that many misfit, physical and mentally incompetent, and otherwise undesirable females do marry; unfortunately such unions produce offspring that are frequently financial and social burdens to society.

What are the outward signs of beauty in the female? Before answering this question we should point out that there are two phases of this phenomenon called beauty—tangible and intangible. Among the former, the tangible, may be included a clear, smooth, colorful skin, devoid of enlarged pores, blackheads, whiteheads, excess oiliness or other evidences of past dermatologic catastrophies. The neck and facial skin should be supple and not dry and parched. Degenerative conditions such as wrinkles, crow's feet, sagging contours, crepey throat and double chins are fatal to beauty. The skin must not appear "aged," or sallow or just vaguely lifeless. A thick headful of hair, vividly intense with its particular color, without the tell-tale snow of dandruff is a most effective asset; a well formed dental arch filled with strong caries-free teeth which gives rise to a dazzling smile is another irreplaceable requisite of beauty; alert, clear eyes, a well developed body with good muscular tonicity, erect carriage and just sufficient fat to produce tangents and curvatures where indicated—these concertedly are the constituents of sex appeal and simultaneously the immediately visible symbols of health.

The intangible appeal is invariably a more compelling lure than those pulchritudinous resources which meet the eye. The composition of this attraction is

not amenable to dissection. It is an inner glow or exuberance which motivate and capacitates a desire for all of life's activities and which energizes a magnetic attraction felt by everyone who falls within its range. Like color, this force is indescribable. Synchronously, these two phases of charm comprise the Lorelei song of sex appeal.

This discussion is concerned with those degenerative or infectious conditions which affect the peripheral organ, the skin. Among such dermatologic aberrations will be found dryness of the skin, chapping, "toad" skin, whiteheads, blackheads, excessive oiliness, enlarged pores, pimples, acne, "crow's" feet, crepey throat, sagging contours, aged skin, and lack of color and tonicity. Symptoms in that epidermal appendage, the hair, are excess dryness, excess oiliness, dandruff and achromotrichia (gray hair). Dandruff or seborrheic dermatitis is ruinous to what otherwise might be an extremely appealing woman, yet this malady is so ubiquitous as to be regarded almost normal. Achromotrichia or loss of hair pigment has always been viewed as an inevitable concomitant of age. Occurring in the 20s and 30s, such an interpretation is a delusion. Thousands of girls in these age groups suffer embarrassment and loss of social and professional opportunity by virtue of gray hair. Even only a few strands of hair so affected, can be a serious impairment. The complacency demonstrated by both, the public and the medical profession towards loss of hair pigment is difficult to understand. This deterioration is indisputable evidence of an abnormal physiologic deviation. Another pathologic exhibition which is most repulsive during the sunbathing months is varicose veins. While not strictly a dermatologic problem, the presence of this condition is incompatible with attractiveness.

The cosmetic industry owes a major portion of its creation and maintenance to dermatologic pathology. For instance 339 million dollars is spent annually for hair rinses, tints, tonics, shampoos and other products —all employed in an effort to restore hair color, lustre, tonicity, to alleviate dryness, to remove excess oiliness, and to remove or cure the ever-present dandruff. Over 99 million dollars is the magnitude of purchases of cleansing creams, lubricating creams, foundation creams, hormone creams and other related preparations, whose hoped for function is to correct dry or oily skin, to remove excess sebaceous material, blackheads, whiteheads and other matter clogging the pores; to mitigate, hide or cure aging skin, wrinkles, crow's feet and to impart some semblance of vitality. The sales of make-up bases, face powder, face lotions, facial cleansers and astringents exceeds 111 million dollars—products with no other real or fancied function other than to conceal or correct enlarged pores, pimples or other blemishes. We have herein a total of 549 million dollars, expended for no other purpose but to correct, mitigate or cover past or present evidences of dermatologic pathologies.

It would be interesting to ponder what phase of modern living can be indicted for necessitating the enormous expenditure of over 500 million dollars for agents with which to conceal or normalize disorders of a major organ—the skin. We might question such factors as climatic conditions, tempo, heating and air-conditioning, and possibly other environmental and behavior patterns. The answer will not be found in any of these proposals with one minor exception, hypokinetic deterioration or lack of exercise. There is no doubt that insufficient physical activity is contributory in a general physical let-down. Any reduction in overall physical status will affect the skin adversely. To repeat, this influence is of relatively small consequence. The real culprit which has spawned the vast and overwhelming catalog of disease known to civilization, which includes a host of dermatologic pathologies, is mal-nutrition. We shall present limited but convincing evidence that nutritional deficiencies are directly responsible for those dermatoses giving birth to and supporting the cosmetic industry.

The patrons of the cosmetic business may be divided into three more or less over-lapping classifications: those who wish to accentuate the charm they already possess; those who seek to acquire the components of beauty nature failed to provide; last and most important financially, those who strive to conceal, mitigate or cure dermatologic impairment.

The role of the nutritional bio-chemicals in the immensely complex body chemistry is still far from being fully understood. Now known to be inexorably essential are the fat-soluble vitamins A, D, E, K, and while not strictly a vitamin, certain essential unsaturated fatty acids. There are a number of minor factors in this group but at the present time are but of academic interest. Equally essential in the human economy are the water soluble vitamins Thiamine, Riboflavin, Niacin, Pyridoximers, Pantothenic acid, Inositol, Biotin, Folic acid, Choline, Ascorbic acid and possibly certain not yet established additional factors. Inextricably involved in the construction and maintenance of the human body are the elements Calcium, Chlorine, Cobalt, Copper, Fluorine, Iodine, Magnesium, Manganese, Phosphorous, Potassium, Sodium, Sulfur, Zinc and possibly others at the present suspected but not proven. We shall touch upon those nutritional components with known and more or less direct effect on the skin and its appendages.

Skin reactions to nutritional deficiencies and errors have been sufficiently explored and chartered to serve as dependable diagnostic signs. These basic changes according to Vilter[1] are: erythema due to dilatation of blood vessels; melanin pigmentation following erythema; hyperkeratosis and scaling of the skin; keratinization of the hair follicles and atrophy of the sebaceous glands; changes in sebum production.

Vitamin A

This accessory factor is of extreme importance from the cosmetic viewpoint. Hypovitaminosis A is etiologic in a number of vague skin disturbances that are

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almost universal among the fair sex and which are a source of formidable income to the cosmetic industry. Outstanding signs of deficiency are the skin becomes dry, rough, lustreless and inelastic. Folicular hyperkeratosis is a certain repercussion which is evident as an elevation and enlargement of the hair follicles, and resembles gooseflesh. The mechanics of these changes are as follows: the sebaceous glands which are small sacular glands surrounding or in intimate proximity with the hair follicles, normally secrete a lipoid or fatty material. This substance is discharged through the lumen of the duct and is known as sebum. Where there is an insufficiency of Vitamin A, the hair follicle or depression from which the hair grows, becomes partially occluded through excess keratinization or thickening of the walls. At the same time the sebaceous glands atrophy resulting in a diminished secretion of sebum. These two, now abnormal, functions are instrumental in the production of dry, firm, papules with protruding cornified plugs. This deposition can be expressed with pressure leaving a gaping hole. The function of sebum is to lubricate the skin and hair. When the sebaceous glands atrophy, such lubrication is reduced or absent by virtue of the reduced or lack of sebum production. When the described process takes place, there is generated some of the most common of all skin complaints, namely, dryness, roughness, inelasticity and senility. The hair becomes dry and brittle. The nails undergo a similar change accompanied by longitudinal ridging. Since Vitamin A is essential for the preservation of the integrity of epithelial cells and for new cell growth, there are appreciable grounds to suspect that hypovitaminosis A is responsible for wrinkles and other signs of aging of the skin.

Lehman and Rappaport[2] offer a comprehensive summation of the relationship of cutaneous disturbances and Vitamin A deficiency. They conclude that sub-optimum levels of Vitamin A are much more common than generally estimated and that various skin lesions classified under hyperkeratosis are definitely attributable to same. Many clinicians have been disappointed in the treatment of various dermatologic entities with Vitamin A. There are several explanations for such failure. Hypovitaminosis is rarely singular but rather is multiple practically without exception. The nutritional bio-chemicals are interdependent and interlocking in their effects. If a person is deficient in Vitamin A, full correction will

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Development, Evaluation and Marketing of Shampoos

by D. H. Powers, Ph.D.
WARNER-LAMBERT PHARMACEUTICAL CO., INC.

The annual sales of shampoos have doubled in the last ten years and are currently running at the rate of 120 million dollars a year. When you realize that shampoos are really a replacement for a "cake of soap" you can better appreciate the outstanding marketing job which has been done when latest surveys indicate that 97 per cent of all women wash their hair at home with a shampoo and 100 per cent of all women use shampoos when their hair is washed at a beauty shop.

Clearly shampoos are far more than a replacement for a "cake of soap" when you realize that they cost five to twenty-five times as much, necessitate the need for bulky packages and do not shorten or simplify the operation. Few of us would worry about a competing product which was ten times as expensive and did not simplify or shorten the operation. Yet shampoos have done just this and it seems to warrant a careful study of development, evaluation or testing and marketing.

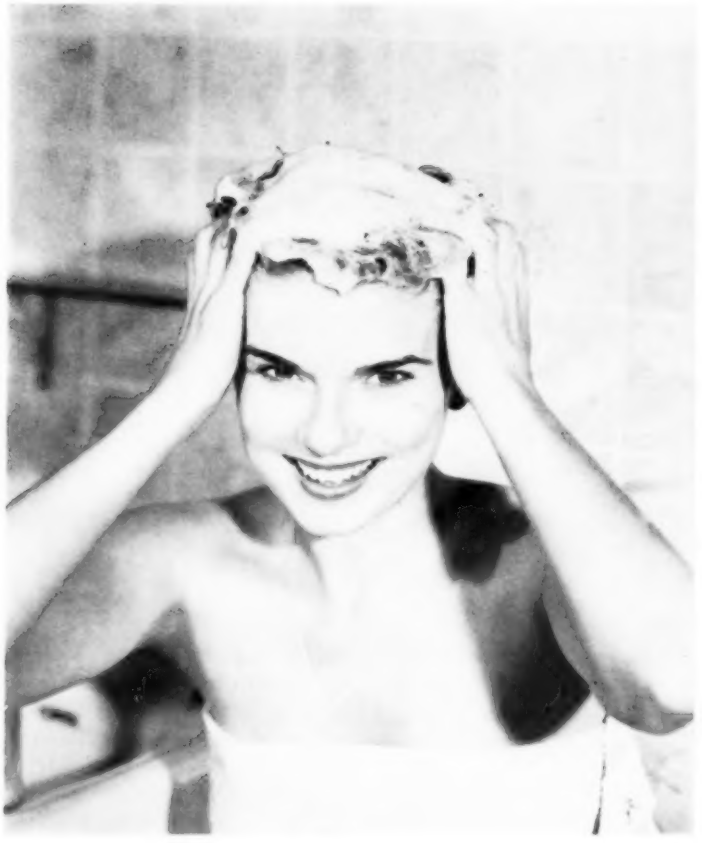
Development

In the forthcoming book on Cosmetics—Science & Technology, there are more than 100 formulae for shampoos given which develop them from vegetable oils, fish oils, synthetic detergents and mixtures of soaps and synthetics. There are liquid shampoos, creme shampoos, solid shampoos, egg shampoos, baby shampoos, antiseptic shampoos and aerosol shampoos. There is no single formulation or type formulation that has proven outstandingly more successful than another, but there have certainly been certain shampoos that have been extremely unsuccessful and have left little or no mark in the trade. Synthetic detergents are used in most shampoos but the most important detergents are rarely used in any shampoos. Those detergents which are being produced in carload quantities for household cleaners and dishwashing compounds find little if any application in shampoos. It seems obvious that shampoo formulation and development is more complex and involved than is normally expected or predicted.

A careful study of the leading shampoos leads one to a definition of these products which help explain their growth and success. It is suggested that satisfactory shampoos are "*products which have some cleansing and foaming action and which leave the hair fragrant, soft, lustrous and manageable.*" They must, of course, be effective in hard or soft water; they must work well in cool or warm water and they must leave a smooth feeling on the hands.

When several thousand women were asked "In addition to being a good cleanser, what feature do you consider most important in a shampoo?," more than a third of them indicated that "It should leave the hair manageable; it should rinse out easily and it should give the hair gloss." About a quarter of the women indicated that a shampoo should not dry the hair; should work well in hard water and should remove dandruff well. Before accepting or adopting

*Presented before the Symposium on Perfumes, Cosmetics and Soaps at the 130th National Meeting of the American Chemical Society, Division of Chemical Marketing and Economics, September 20, 1956, at Atlantic City.



any of these findings the following questions should be raised and answered if possible: Is a shampoo a good cleanser? What does a woman mean by manageable? How can a woman tell when a shampoo rinses out easily? Does she judge its effectiveness in hard water by its foam?

In developing a shampoo it is also important to select the proper consistency, viscosity and texture or appearance. While there are trends and styles no quality seems so important that a new product, well-packaged and well-promoted cannot change a trend. In one survey a liquid shampoo was preferred by a half of those questioned, a third favored a cream shampoo and a quarter favored a cream-lotion or liquid cream shampoo. The viscosity varies from very thick to water-thin with the very thick being packaged in a jar and the thin packaged in a narrow-mouth glass or plastic bottle. While tubes of shampoo have found a vogue abroad they have little popularity here. A sachet or small envelope of shampoo has been extremely popular abroad probably because of its low cost per unit package.

Where soaps are developed for shampoos, olive oil soaps have been considered excellent by beauty shops. Since olive oil is essentially oleic glyceride (83 per cent) these olive oil soaps were essentially sodium oleate and were poor in lather. It is probable, however, that some unchanged olive oil in the shampoo contributed to the feel they imparted to the hair. The coconut oil soaps have always been noted for their lather and this is not surprising when we realize that coconut oil is 48 per cent lauric glyceride and 18 per cent myristic glyceride. On conversion in the sodium salts of lauric and myristic acids they may be expected to give excellent foam even at room or body temperatures. It is possible that coconut oil soaps are sometimes drying and irritating to the skin because of their content (15 per cent) of caprylic and capric acids.

Within recent years the various fatty acids ha e been available in highly-purified form. It is surprising to learn that highly-purified fatty acid soaps of a single fatty acid make extremely poor shampoos, and we need mixtures and blends of these fatty acids, together with activators to give good sudsing and shampoo action. An analysis of a time-proven mixture of vegetable oils tells us what acids are in a good shampoo with good foaming action. The natural oils are saponified by the potash in the formula to form the soluble potassium salts of the fatty acids listed below. This combination of potassium salts of fatty acids gives excellent lather and foam in cool and warm water. Clearly, an infinite range of shampoos can be formulated by varying the ratio of oils, alkali and acids.

Since a wide range of vegetable oils is available, a

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MEPROBAMATE and Mental Disturbances

A two day conference on **"Meprobamate and Other Agents Used in Mental Disturbances"** held under the auspices of the Sections of Biology and of Psychology of the New York Academy of Sciences on October 18 and October 19, 1956 was attended by more than 500 physicians and investigators. Papers comprised laboratory studies attempting to elucidate mechanism of action and clinical studies describing controlled studies with patients. At the dinner meeting on October 18, Aldous Huxley was the principal speaker and discussed "The History of Tension," but especially marked the pharmacological revolution:

"Pharmacology has now entered upon a period of rapid growth, and it seems quite certain that in the next few years scores of new methods for changing the quality of consciousness will be discovered. So far as the individual human being is concerned, these discoveries will be more important, more genuinely revolutionary, than the recent discoveries in the field of nuclear physics and their application to peace-time uses. If it does not destroy us, nuclear energy will merely give us more of what we have already—cheap power, with its corollary of more gadgets, larger irrigation projects, more efficient transportation, and so forth. And it will give us these things at a very high price—an increase in the amount of harmful radiation, with its corollaries of harmful mutations and a permanent fouling of man's genetic pool. But the pharmacologists will give us something which most human beings have never had before. If we want joy, peace and loving-kindness, they can give us loving-kindness, peace and joy. If we want beauty, they will transfigure the outside world for us and open the door to visions of unimaginable richness and significance. If our desire is for life everlasting, they will give us the next best thing—aeons of blissful experience miraculously telescoped into a single hour. And they will bestow these gifts without exacting the terrible price which, in the past, men had to pay for resorting too frequently to such consciousness-changing drugs as heroin or cocaine or even that good old stand-by, alcohol. Already we dispose of hallucinogens and tranquilizers, whose physiological price is amazingly low, and there seems to be every reason to believe that the consciousness-changers and tension-relievers of the future will do their work even more efficiently and at even lower cost to the individual. Human beings will be able to achieve effortlessly, by harmless difficulty, by self-control and spiritual exercises, or at ruinous cost by dangerous and degrading poisons. Will this be a good thing for individuals and for societies? Or will it be a bad thing? These are questions to which I do not know the answers. Nor, I may add, does anyone else. The outlines of those answers may begin to appear a generation from now. Meanwhile all that one can predict with any degree of certainty is that many of our traditional notions about ethics and religion, many of our current views about the nature of mind, will have to be reconsidered and re-evaluated in the context of the pharmacological revolution. It will be extremely disturbing; it will also be enormous fun."

The conference was organized by J. G. Miller of the University of Michigan and F. M. Berger of Wallace Laboratories. The chairman of the session devoted to the **"Chemistry, Pharmacology and Mode of Action of Meprobamate"** was H. Beckman of the Marquette University School of Medicine. F. M. Berger discussed *Chemistry and Mode of Action of Tranquilizing Drugs.* A new group of therapeutic agents called tranquilizers or ataractics can subdue excitement and improve emotional balance without producing sedation. According to their chemical structure, they can be classified into the following groups: 1) the *phenothiazines*, such as chlorpromazine, promazine, Pacatal; 2) *reserpine* and related alkaloids; 3) *diphenylmethane derivatives* such as azacyclonol, hydroxyzine and benactyzine; 4) *substituted propanediols* such as meprobamate, mephenesin and hydroxymethyl 1,3-dioxolanes. Based on their pharmacological properties, the tranquilizers fall into two groups: the "autonomic

Aldous Huxley, right, who predicted tranquilizing drugs more than twenty-five years ago in his novel, "Brave New World," chats with Dr. Frank M. Berger, center, medical director of Wallace Laboratories, during the "Miltown" conference. At left is Mr. Huxley's brother, Julian, noted biologist.

suppressants" comprising the phenothiazines, reserpine and diphenylmethanes, and the "central relaxants" with meprobamate, mephenesin and related compounds.

The "autonomic suppressants" antagonize certain effects of acetylcholine, histamine and serotonin. Like antihistamines, they prolong barbiturate anesthesia and increase the hyperexcitability produced by strychnine. Like atropine, they produce a sleep pattern in the electroencephalogram without inducing sleep. They block avoidance or conditioned reflexes and interfere with learning and performance. In monkeys, they produce loss of aggressiveness but also withdrawal, listlessness, anorexia, and catatonia. Normal humans taking these experience changes in feelings, mood, thought and behavior.

The "central relaxants" on the other hand, do not affect autonomic functions but prevent deaths induced by strychnine and produce relaxation of voluntary muscles. In the electroencephalogram, a sleep pattern is not produced and conditioned reflexes are not abolished. Monkeys lose their hostility but there is no isolation from environment and no catatonia or anorexia. Norman humans report little or no physical or mental changes.

The two groups also differ from each other in their mode of action and clinical applications. The "autonomic suppressants" probably act by augmenting the excitability of the posterior sympathetic hypothalamus which shows deficient reactivity in many psychotics. The "central relaxants" selectively reduce exaggerated responses and after-responses that are frequently hyperactive in psychoneurotics.

The skills necessary for safe driving are not affected by the tranquilizing drug meprobamate, according to a controlled study completed at the Mental Health Research Institute of the University of Michigan, Ann Arbor by D. G. Marquio, R. W. Gerard, E. L. Kelly, J. G. Miller and A. Rapoport, and titled *Experimental Studies of Behavioral Effects of Meprobamate on Normal Subjects.*

H. F. Hunt discussed *Some Effects of Meprobamate and Other Drugs on Conditioned Fear and Emotional Behavior.* A series of preliminary investigations with rats has developed the following findings, to date: Meprobamate does not disrupt or interfere with lever pressing for variable interval water reinforcement. Nor does meprobamate interfere noticeably with acquisition, retention over short intervals, or experimental extinction of a conditioned emotional response of the "fear" or "anxiety" type. Some evidence suggests the drug may decrease slightly the resistance of such conditioning to extinction, however.

Preliminary evidence indicates that meprobamate can offset dramatically the irritability, aggressiveness, and exaggerated startle response which develop in rats after stereotaxically placed lesions have been made in the septal area of the brain. These animals with septal lesions but which did not develop the irritability, show no change in behavior after receiving the drug.

E. H. Hess exhibited a motion picture film concerning *Effects of Meprobamate on Imprinting in Water-*

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Cosmetics and Toiletries

In a market of nearly $1,200,000,000 (which is the record figure for total sales of toilet goods in 1955) it is interesting to see what percentage of sales is due to consumption of cosmetics and toiletries by men. No sharp line of demarcation is drawn here between cosmetics and toiletries, although it is generally assumed that *cosmetics* are mainly bought for some special, yet concrete, effect on and around the skin at the time of application, in addition to the subtle but pleasing perfume odor usually associated with this category of products. On the other hand, the predominating value of a toiletries item is its superb fragrance and the abstract effect produced on morale, esthetic mood, nerves, etc., by contact of the fragrance with the odor receptors in our noses. However, as hinted at before, the two effects are often combined in one product.

Before we go into an analysis of the toilet goods market and its breakdown into "male" and "female," let us briefly recall the history and development, as well as the chemical nature of cosmetics and toiletries for men. As for the history—well, it's as old as that of the toiletries for women. However, while everybody has heard, at one time or another, of fabulous sums of money spent by women throughout the ages, for such products as fragrant ointments, or incense and myrrh, or of such extravagancies committed by beauty-hungry members of the fairer sex as bathing in milk, wine or champagne, or welcoming near-torture by sitting still in a beauty parlor under an electric hair dryer, few people have stopped to think that men were just as fond of fragrant ointments and bewitching perfume odors, two thousand or two hundred years ago, as their female counterparts. In fact, much more money has been spent by men than women for these beautifying or spirit-lifting luxuries throughout the ages. Just think of the startling discovery of perfume materials, still fragrant after thousands of years, when Pharaoh's tomb was discovered and opened up in our time, of the highly skilled fragrance specialists employed by extravagant Roman emperors as masters of ceremonies for their fragrant court orgies, of the large consumption of fragrant gums, balsams, resins and spices by the European Kings of the Middle Ages or even of more recent times.

The turn of the Century saw cosmetics and toiletries for men in use to a large extent, yet rather ignored by statisticians and grossly underrated as profitable business. Sales centered around preparations for the beard, the he-man's advertising sign of masculinity, such as beard-setting contraptions and pomades, and for the hair, such as brilliantines, as well as for the mouth, such as tooth pastes and mouth washes. Any preparation of real fragrance value was considered to be below a man's dignity, unmanly. Things changed with the advent of the razor, the appreciation of the clean-shaven face, the consciousness of good grooming. The success of the Gillette Company, running into the hundreds of millions of dollars, startled the business world. Shaving brushes were produced and sold by the millions; the use of shaving preparations became a necessity for the daily morning toilette of the master of the family. Soapers were busy pouring freshly-made soap melts into shaving mugs, ignoring chemical specifications from batch to batch—rather relying on skilled soap makers, whose tongues and taste buds were still taking the place of titrations or modern pH machines. Today, the chemist holds the excess alkali down to a few hundredths of one per cent, after complete neutralization of the fats; and the free fatty acid at a rather low optimum figure, to secure for the shaving soap, plasticity, non-irritating properties, maximum formation of moist lather and best stability to rancidity attack. To the poured mug soap followed the shaving tablet as a refill for the mug, a milled soap cake made by compressing soap chips, just as modern toilet soap cakes are produced, as well as the related shaving soap stick in its cylindrical metal housing. Not so long ago Lather Shave Cream in squeeze metal tubes were considered the last word in shaving preparations, although the contents were nothing but a wetter soap mix ground to a cream-like consistency with the use of higher percentages of humectants.

*Presented before the Symposium on Perfumes, Cosmetics and Soaps at the 130th National Meeting of the American Chemical Society, Division of Chemical Marketing and Economics, September 20, 1956, at Atlantic City.

for Men*

by Oliver L. Marlon, Ph.D. SHULTON, INC., CLIFTON, N. J.

The advent of the brushless shaving cream, together with the recent enthusiastic reception the pressurized Aerosol shaving creams have found, should forecast the beginning of the end for shaving brushes; however, in many parts of the country the male population still sticks to the more old-fashioned types, and the manufacturer of today is thus compelled to make all the various types of shaving preparations mentioned.

Together with the broadening of the market for shaving preparations went the introduction of after-shave lotions. These are alcoholic, nicely but not heavily perfumed clear lotions, which rely on their alcohol content for an astringent and mildly antiseptic effect on the skin just badly abused by the scraping and cutting action of the razor blade. These lotions thus became the successors to the alum blocks or cakes formerly widely used after shaving, to close the pores of the skin by their astringent effect. The action of such a concentrated alum application was rather harsh and the burning sensation strong; in fact, the action was comparable to that of tannic acid on hides in the manufacturing of leather. Today, all that's left of the alum cake use is a slender styptic pencil to stop bleeding when the skin is cut during shaving.

So the switch to the milder, more pleasant-to-use After Shave Lotion came as a welcome step forward, inasmuch as by this time the male consumer had learned to lay aside his objections to smelling perfume odors on himself. Perfumers got busy and developed for these Lotions what they considered mannish types of perfume odors, such as fougere, tobacco, leather and lilac. Presentation was in rather simple-looking glass bottles, devoid of glamor, as fitting for functional cosmetic or toiletries items.

It was left to Shulton to take a new "three-in-one" step in the production and marketing of men's cosmetics and toiletries less than twenty years ago. "Three-in-one"—because three original concepts were combined to establish the new men's line:

1. Presentation of containers and packages in striking historical, Early American gift fashion;
2. Mass production of gift-packaged items on the running belt, by modern engineering methods; and, last but not least,
3. Strict chemical, physical and physiological control of all ingredients, as well as of the composition of the finished end products, by chemists, perfumers and dermatologists.

And now a few interesting facts and figures on men's cosmetics and toiletries in general:

1. Although he would never admit it, the average American male uses *more* perfumed products today than the ladies.
2. Of the $1,200,000,000 worth of cosmetics and toiletries sold in this country, shaving products for men represent nearly one quarter of this big market. In 1955 these sales amounted to over $275,000,000. This figure does not include other big toiletry items such as hair tonics and deodorants. Roughtly 10 per cent, or $27,000,000 is spent for After Shave Lotion alone.
3. Just to give you some idea of how this market compares with other general classifications of cosmetics and toiletries: The $275,000,000 done in men's shaving products is almost as big as the entire *cosmetic market* which includes all creams, make-up bases, lipsticks, rouge, mascara and even compacts.

The man's market is three times as big as the women's *fragrance preparations market*, which includes perfume, toilet water, colognes, bath salts, bubble bath, etc.

4. The volume of After Shave Lotion alone is bigger than the total perfume market. It is 60 per cent as big as the market for all toilet waters and colognes.
5. If the market were measured in gallons instead of in Dollars, the After Shave Lotion market would be the largest single fragrance market in existence. It is almost as big as the total lipstick market. There is more After Shave Lotion sold than face powder, and there is more sold than all the talcum and dusting powder put together.

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Pharmaceutical Research Organization 2.

by Joseph Kalish, Ph.D.

American Cyanamid Company has consolidated its research activities into a single division under the direction of R. C. Swain, Vice President in charge of process development and research and Kenneth H. Klipstein, Division Manager, regrouping them geographically so that related activities are brought together at the appropriate research laboratory.

The Research Division has coordinate status with the nine operating divisions and carries out research for them.

At Bound Brook, research activities are primarily related to the Organic Chemicals and Pigments Divisions. These include research in the fields of rubber chemicals, textile resins, dyes, pigments and intermediates.

At Pearl River, all Cyanamid's research in the pharmaceutical and biological fields is centralized in one location.

As a result of the realignment of research activities, the laboratories at Stamford, Conn., carry on researches in the plastics, agricultural, industrial chemicals and mineral dressing fields, as well as process development and basic research in new fields.

Integration of Cyanamid's research activities into a single division is a sharp departure from the earlier organization of this function. Before January, 1954, research was carried on by three separate Cyanamid organizations; one was the former Calco Chemical Division; another, the Lederle Laboratories Division; and the third, the Stamford Central Research Laboratories.

The establishment of a Research Division recognizes the importance of this function to the future growth of the Company. The consolidation will also improve research efficiency by eliminating unnecessary duplication of facilities and by providing for a greater emphasis on long-range and exploratory research. Total research and process development expenses in 1955 were $20,657,601.

Recent new products stemming from process development and research have included a systemic insecticide applied directly to seeds to protect plants during early stages of growth against insect damage; now undergoing extensive trials, this preparation is scheduled for broad scale commercialization in 1957. In the medical field, new products under development include a derivative of the non-mercurial diuretic "Diamox," an unusual sulfa drug and the antibiotic puromycin for the treatment of amebic dysentery and sleeping sickness. The company's research interest in developing vaccines for polio and other virus diseases on the basis of attenuated rather than killed virus still continues.

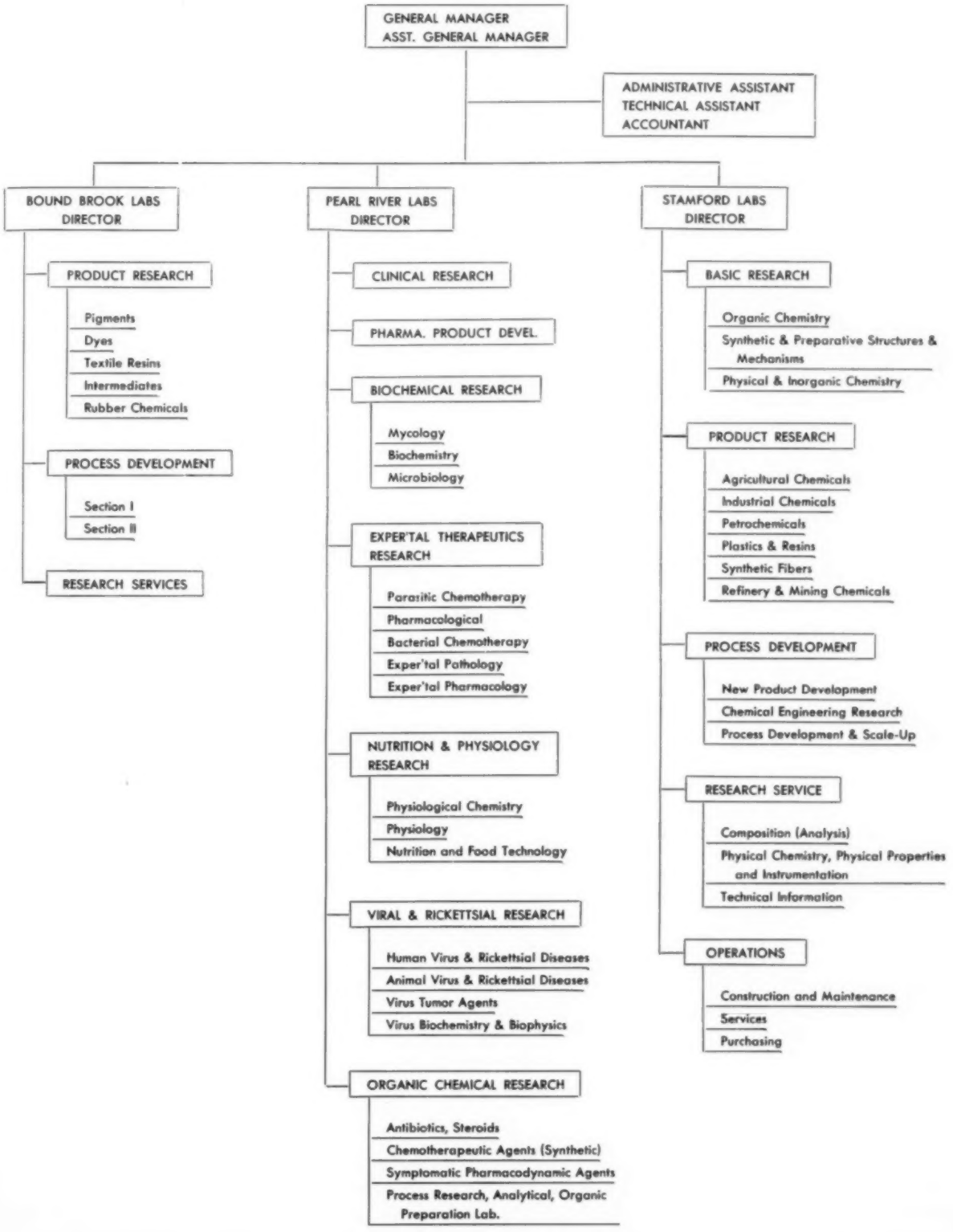
Cyanamid's acrylic-type fiber and acrylamide, both developed from investigations in the field of acrylonitrile and its derivatives, are undergoing market and field evaluation, along with process engineering and cost studies.

To encourage a wide range of effort by the individual scientist, approximately 15 per cent of his time is alloted to exploratory work and basic research on new ideas of his own choice. As a result of this program, the exact chemical structure of the polypeptide hormone ACTH has been elucidated, and much of the work leading to the accepted structure of the tetracyclines was done.

An important step toward consolidation of research activities has been the construction program to improve research facilities of the Bound Brook and Pearl River Laboratories. At Bound Brook, a new administration-laboratory building will bring together all research activities at Bound Brook previously scattered through several buildings. The building program at Pearl River, now completed, called for additions to the facilities of the Organic Research and the Experimental Therapeutics Sections.

AMERICAN CYANAMID COMPANY

Research Division



Society of Cosmetic Chemists Seminar

L. to R. Dr. Donald M. Skauen, University of Connecticut, School of Pharmacy; Gabriel Barnett, Chairman of the Seminar; S. J. Strianse, President-Elect of the Society of Cosmetic Chemists; John P. Bolanowski, The Girdler Company; Dr. Wilfred Roth, Roth Laboratory for Physical Research; Dr. S. D. Gershon, Lever Brothers Co.

A record number of scientists gathered to learn about and discuss scientific developments that may have far-reaching effects upon the cosmetic field on the occasion of the Third Annual Seminar of the Society of Cosmetic Chemists, October 4 and 5. This Seminar was again organized by Gabriel Barnett of Coty Products Corp., who also served as Seminar Chairman in 1954 and 1955.

Attendance totaled 275, including 175 members of the Society of Cosmetic Chemists and 100 guests. Cosmetic chemists came from Canada, England, and Germany, as well as all parts of the United States to attend the meeting. Seminar registrants from England included the President of the Society of Cosmetic Chemists in Great Britain, R. T. Dobson of Chesebrough-Pond's, and the past President, Dr. Robert H. Marriott of County Laboratories, Ltd. From Germany came Dr. Gustav Erlemann of Schwarzkopf. Representatives from Canada were Adam Wyganski of Protection Chemical Co., and T. Shimizu and A. Hughes, both of Noxzema Chemical Co. in Toronto.

Authorities presented to the 1956 Seminar the latest advances in their fields of science and attempted to evaluate their significance to the cosmetic field. Three major areas were covered—epidermal keratinization, viscosity, and special methods of emulsification.

Marion B. Sulzberger of the Department of Dermatology, New York University-Bellevue Medical Center was moderator for the session on the **Biochemistry of Keratinization** and the succeeding round table discussion had Franz Hermann and Rudolf L. Baer of the Department of Dermatology, New York University-Bellevue Medical Center, Earl O. Butcher, Department of Anatomy, College of Dentistry, New York University and Irvin H. Blank, Massachusetts General Hospital, Boston, as discussants.

Stephen Rothman of the University of Chicago School of Medicine discussed *Physiology and Pathology of Epidermal Keratinization.* Normal keratinization

Gabriel Barnett; Dr. Franz Herrmann, Department of Dermatology, New York University—Bellevue Medical Center; Veronica L. Conley, American Medical Association; Dr. Irvin H. Blank, Massachusetts General Hospital.

of human and other mamalian epidermis ends up with the continuous shedding of invisible, small horny particles while the layer below remains continuous, flexible and smooth. When this process is disturbed two main types of abnormalities occur: 1, visible scales appear on the skin surface or 2, the shedding process is partially inhibited so that the horny layer thickens and its surface may appear uneven and rough. Counteracting such abnormalities is important both medically and cosmetically. In all keratinization anomalies the esthetic appearance of the skin is adversely affected. Two main mechanisms are in play in the keratinization process. The first concerns the de-

Dr. Peter Flesch, University of Pennsylvania, Department of Dermatology; Dr. Stephen Rothman, University of Chicago, School of Medicine; Dr. Marion B. Sulzberger, Department of Dermatology, New York University —Bellevue Medical Center; Gabriel Barnett.

hydration of the keratinizing cells: dehydration must progress at a certain optimal rate to a certain optimal end point. Deviations from these optima may be caused either by pathological alterations of the keratinizing cells or by external environmental influences which modify the water holding capacity of the horny layer.

The second mechanism is concerned with the decomposition of the nucleus and cytoplasm of the keratinizing cell. If this decomposition is incomplete, as is the case in so-called *parakeratosis*, visible scales will appear on the surface. In most instances this anomaly is due to an accelerated keratinization because of accelerated cellular growth. The incomplete decomposition of the cytoplasm implies impairment of free lipid production because of deficient splitting of cellular lipoproteins. There is an interplay between water and lipid content of the superficial horny layer and there is an optimal state not only for its water—but also for its lipid content.

Cecily Cannan Selby of the Cornell University Medical College presented a paper on *Morphology of the Epidermis as Shown by the Electron Microscope*. By the electron microscopic observation of sections of the epidermis, it is possible directly to visualize hitherto invisible details of cell structure and thus to bridge the gap between chemical and physical studies of macromolecules and optical microscopic studies of cells. A comprehensive electron microscopic survey of ultra-thin sections of human epidermis has demonstrated the following details of the dermo-epidermal junction and of epidermal cell components.

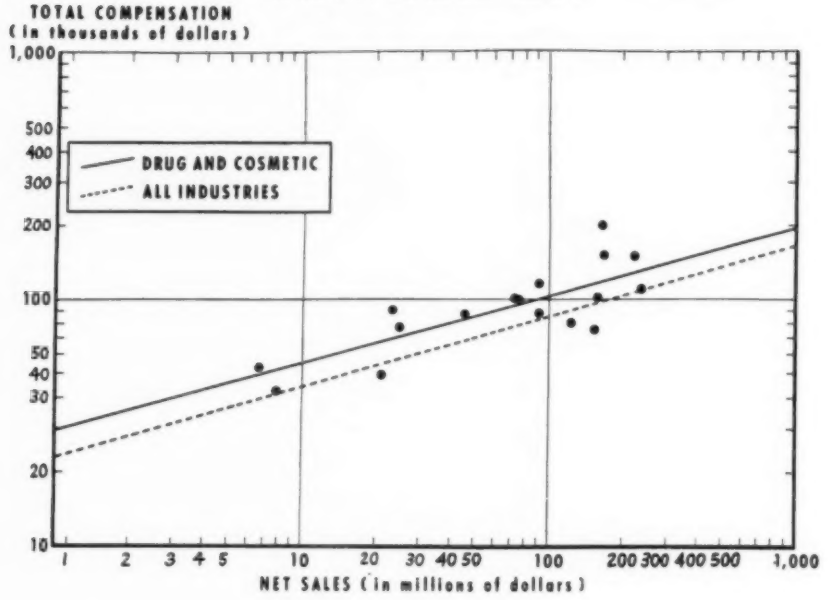
The basement membrane consists of narrow collagen fibrils and a broad membrane ("dermal membrane"). The latter follows closely the contours of the epidermal cell membrane but is always separated from it by a space of approximately 300A, and continues without interruption along the whole distance of the dermo-epidermal junction. Epidermal cell cytoplasm is characterized by numerous narrow filaments distributed loosely, for the most part, in thin skins and bundled into tonofibrils in plantar skins. These filaments (tonofilaments) terminate at intercellular bridges or at regularly spaced rows of small granules on the cytoplasmic side of the cell membrane at the dermo-epidermal junction. In addition to pigment granules, basal cell cytoplasm contains mitochondria, the Golgi apparatus, submicroscopic particulates and sparse endoplasmic reticulum. Malpighian cells of the next succeeding layers differ from basal cells only in a slightly increased grouping of tonofilaments into fibrils and a loss of their association with the nuclear membrane. As in the basal cells, intercellular bridges are zones of close contact shared by adjacent cells. Such bridges have been found in other cell types and are given the more general name of *desmosomes*.

Cytoplasm becomes denser in cells of the s.granulosum, due to dehydration, a maximal grouping of filaments into fibrils and the presence of large, dense, irregularly shaped masses (keratohyalin granules).

(Continued on page 708)

CHART I

TOTAL COMPENSATION OF CHIEF EXECUTIVE OFFICER RELATED TO 1955 NET SALES IN THE DRUG AND COSMETIC INDUSTRY



Executive Compensation in the

by John B. Merrell

McKINSEY & COMPANY, INC., MANAGEMENT CONSULTANTS

This article, prepared especially for Drug & Cosmetic Industry, draws upon information gathered for the annual survey of top-management compensation conducted by McKinsey & Company, management consultants. The complete survey covers a total of 606 companies in 18 major industries and is based on executive compensation data filed by these concerns with the SEC. Results of the full survey appear in the November Harvard Business Review.

This article reports on executive compensation trends in the drug and cosmetic industry as represented by a cross section of 19 leading manufacturers of patent medicines, ethical drugs, and cosmetics.

The Editors

Chief executives of drug and cosmetic companies tend to be more highly compensated than the top men of concerns having comparable sales volume in other industries. The substantial differential between the payments (which include salaries, bonuses, and deferred compensation) made to heads of drug and cosmetic companies and the average for industry generally is shown in Chart 1. The solid line represents compensation paid to chief executives in the drug and cosmetic industry, while the dotted line shows average chief executive compensation in the 18 industries studied. The dots indicate payments made to the top executives of individual drug and cosmetic companies.

Increases in Compensation

In 1955, chief executives in the drug and cosmetic industry received smaller compensation increases than the top men in most other industries. The average increase in the industry was 4.4 per cent, compared with an average of 6.3 per cent among all 18 industries studied. In 11 of these 18 industries, chief executives received higher average increases than the 4.4 per cent reported by the drug and cosmetic industry.

Although the drug and cosmetic average pay was up 4.4 per cent, more than half of the top men actually worked for the same amount as they received in 1954. Only 37 per cent of the companies reported increasing the chief officer's pay, and 19 per cent indi-

cated that his compensation had been decreased.

In 1955, the drug and cosmetic companies studied increased their sales and profits slightly more than the average for all industries. Drug and cosmetic sales were up 21 per cent above 1954 and profits improved by 35 per cent. The respective figures for all industries were 15 per cent and 34 per cent.

Indicating that relatively few drug and cosmetic companies use profit-based compensation plans, little relationship was found between the top man's increase and the profit performance of his company. Well over half of the companies analyzed reported higher profits in both 1954 and 1955, yet only one of this group of companies raised its chief executive's pay both years.

It is interesting to note that top management's compensation in the drug and cosmetic industry has increased during the past two years approximately two-thirds as fast as the gross earnings reported by the *Monthly Labor Review* for the industry's production workers. In 1955, the chief executive's average increase matched that granted production workers:

Average Increase	Production Workers	Chief Executive
1954 over 1953	4.8 per cent	1.9 per cent
1955 over 1954	4.4 per cent	4.4 per cent

Stock Option Plans

Stock option plans were more widely used by drug and cosmetic companies than by industry generally. Sixty per cent of these concerns reported using stock options while only 47 per cent of the 606 companies studied indicated their use.

Deferred Compensation Plans

Deferred compensation plans are evidently becoming an increasingly important element in the compensation of top management. The drug and cosmetic industry uses these plans to a greater extent than industry generally, the respective figures being 26 and 17 per cent.

Compensation of Second, Third, and Fourth Highest Paid Executives

The compensation of other top officers in drugs and cosmetics tends to be closer to the chief executive's pay than is found in industry generally. The median figures for the percentage relationship between the pay of the second, third, and fourth highest paid executives and that of the chief executive are as follows:

Continued on page 704)

Drug and Cosmetic Industry

CHART II

RELATIONSHIP BETWEEN PRINCIPAL OFFICERS' AND CHIEF EXECUTIVES' PAY

Drugs and Chemicals 1955

The United States Tariff Commission has released production, sales, and sales value figures for synthetics organic chemicals produced in this country in 1955. We present the available figures on products of particular interest to this industry.

Antibiotics

Antibiotics for human and veterinary use were produced in 1955 to the total of 1,572,000 pounds, compared with 1,837,000 in 1954. Although production was down, sales were up in 1955 totaling 1,367,000 pounds, against 1,263,000 in 1954. Value of sales for 1955 was also higher at $212,392,000, against $210,128,000 in 1954.

The largest antibiotic tonnage and the greatest value was in the listing "all other antibiotics" which includes all the wide spectrum products. Production of these antibiotics totaled 579,000 pounds in 1955, down from 579,000 pounds in 1954. However, sales in 1955 totaled 480,000 pounds, up from 461,000 pounds in 1954. Value of sales in 1955 totaled $171,745,000, up from $156,278,000 in 1954.

The next antibiotic from the point of value, but not from the point of tonnage because the weight of dosage is less, was penicillin. Production of penicillin salts during 1955 totaled 455,000 pounds, down from 631,000 pounds. However sales were higher in 1955, totaling 445,000 pounds, against 427,000 pounds in 1954. Value of sales in 1955 totaled $43,980,000, down from $53,030,000 in 1954.

Production of dihydrostreptomycin in 1955 totaled 369,000 pounds, down from 446,000 pounds in 1954. Sales of this antibiotic in 1955 totaled 332,000 pounds, up sharply from 286,000 pounds in 1954. Value for 1955 was $16,318,000, down from $19,476,000 in 1954.

Streptomycin production in 1955 totaled 154,000 pounds, up from 141,000 pounds in 1954. Sales also were higher at 99,000 pounds in 1955, compared with 75,000 pounds in 1954. Value of $5,127,000 in 1955 was lower than the 1954 figure of $5,497,000 in 1954.

Neomycin production in 1955 totaled 15,000 pounds in both 1955 and 1954. However, sales in 1955 totaled 11,000 pounds, up from 9,000 pounds in 1954. Value of sales in 1955: $5,222,000, up from $4,563,000 in 19.4.

Antibiotics for animal food supplements were produced to the extent of 520,000 pounds in 1955, up from 479,000 pounds in 1954. Sales of 553,000 pounds in 1955 were lower than 562,000 pounds in 1954. Value of sales in 1955 totaled $26,105,000, up from $25,871,000 in 1954.

Analgesics

Aspirin production, sales, and sales value were all higher in 1955 than in 1954. Production in 1955 totaled 15,092,000 pounds, compared with 13,913,000 in 1954. Sales for 1955 were 13,203,000, valued at $6,955,000, against 1954 figures of 11,686,000, and $6,254,000.

Procaine and salts figures, as well as benzocaine figures were all lower. Procaine and salts figures were: production 1955—432,000, 1954—560,000; sales 1955—432,000, 1954—506,000; sales value 1955—$1,331,000, 1954—$1,531,000. Benzocaine figures were: production 1955 — 62,000 pounds, 1954 — 78,000 pounds; sales 1955—66,000 pounds, 1954—77,000 pounds; sales value 1955—$199,000, 1954—$242,000.

Sodium salicylate figures were all up sharply: production 1955 — 1,838,000 pounds, 1954 — 896,000 pounds; sales 1955—1,307,000 pounds, 1954—975,000 pounds; sales value 1955—$638,000, 1954—$542,000.

Sedatives

Barbiturates were up in production, but down in sales and sales value. Barbiturate production in 1955 totaled 864,000 pounds, against 798,000 in 1954. Sales in 1955 totaled 486,000 pounds, against 524,000 pounds in 1954, and sales value for 1955 totaled $2,807,000, against $3,204,000 in 1954.

Phenobarbital figures were: production 1955—431,000 pounds, 1954—316,000 pounds; sales 1955—292,000 pounds, 1954—313,000; value of sales 1955—$1,017,000, 1954—$1,118,000.

(Continued on page 717)

Food-Store Sales of 'Drug Items' Rise

In The Nielsen Report to Retail Food Stores, A. C. Nielsen Company surveys the sale of what it calls "drug items" in U. S. food stores as compared with the sale of these groups of items in the drug stores of the Nation. The information which follows is taken from this report.

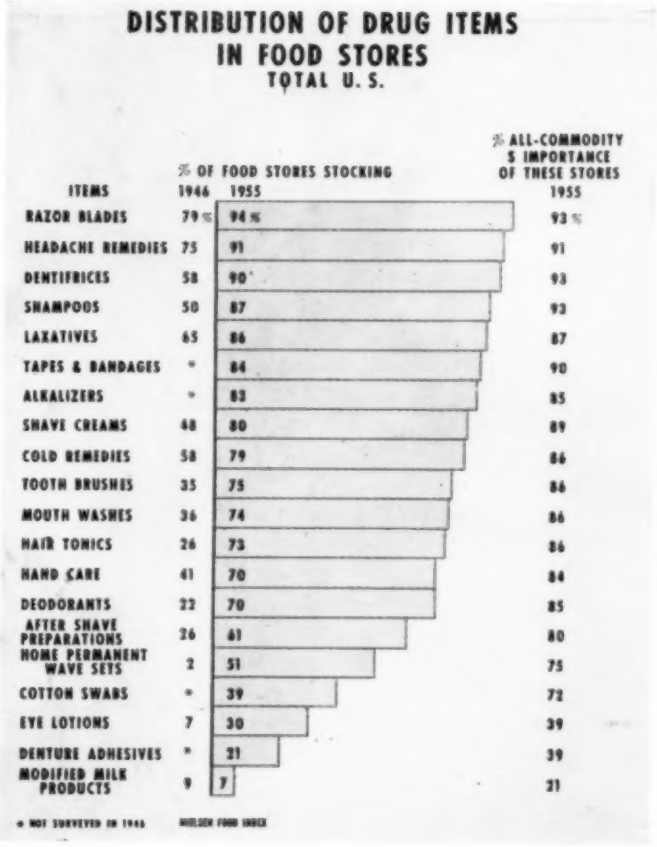

DISTRIBUTION OF DRUG ITEMS IN FOOD STORES
TOTAL U. S.
% OF FOOD STORES STOCKING
% ALL-COMMODITY $ IMPORTANCE OF THESE STORES
ITEMS
1946
1955
1955
RAZOR BLADES 79% 94% 93%
HEADACHE REMEDIES 75 91 91
DENTIFRICES 58 90 93
SHAMPOOS 50 87 93
LAXATIVES 65 86 87
TAPES & BANDAGES * 84 90
ALKALIZERS * 83 85
SHAVE CREAMS 48 80 89
COLD REMEDIES 58 79 86
TOOTH BRUSHES 35 75 86
MOUTH WASHES 36 74 86
HAIR TONICS 26 73 86
HAND CARE 41 70 84
DEODORANTS 22 70 85
AFTER SHAVE PREPARATIONS 26 61 80
HOME PERMANENT WAVE SETS 2 51 75
COTTON SWABS * 39 72
EYE LOTIONS 7 30 39
DENTURE ADHESIVES * 21 39
MODIFIED MILK PRODUCTS 9 7 21
* NOT SURVEYED IN 1946
NIELSEN FOOD INDEX

CHART 1

Everyone engaged in the retail food business is well aware of the growing importance of the sale of health and beauty aids in food markets. A growing number of these commodity lines which are small and compact in size, which generally bear larger markups than food commodities, and which move fairly rapidly when properly displayed, have been added to food store stocks within the past decade.

The possibility of selling these so-called drug items in food stores first became apparent soon after the end of World War II. Previously only a few miscellaneous items had been carried at the cash registers of food stores for the convenience of a few customers. By 1946, the sale of these products became sufficiently widespread in food stores to warrant some special attention.

Each year since then, in variety and in dollar volume, the sale of these products in food markets has increased in importance until today retail food stores report a larger share of dollar volume on some of these commodities than do retail drug stores.

An idea of the increasing extent to which these drug and personal care items are stocked and sold by food markets may be gained from looking at Chart 1 (Distribution of Drug Items in Food Stores). Here is a list of twenty commodity groups varying in importance from several that accounted for over a hundred million dollars worth of sales last year to others that had total sales of comparatively few millions.

Note that the percentage of food stores handling these products varied from 94 per cent to seven per cent in 1955, on a store count basis. Of even greater significance were the percentage figures shown on Chart 1 under "All-Commodity $ Importance of These Stores." These right hand figures represent the respective shares of total food store dollar sales accounted for by stores handling these items. For example, on a store count basis, 51 per cent of all food stores handled home permanent wave sets, yet the proportion of food business transacted through these food stores was three-quarters of the nation's food store dollar sales. This, of course means that the higher volume food stores with bigger display and promotional facilities are actively engaged in the promotion and sale of these drug commodities.

It is not enough to realize that the percentage of food stores stocking these items has increased several-fold since 1946, it should also be realized that it is primarily the larger superettes and super markets that are absorbing more and more of the sales of these drug items. And as far as actual numbers of food outlets are concerned, there are so many thousands of food stores in business that for any particular item a 50 per

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by PLUME & ATWOOD

the **case** for quality; container division, the PLUME & ATWOOD MFG. CO., Thomaston, Conn.

cent distribution in numbers means that there are over *three times* as many of them handling this item as there are drug stores in existence.

To better analyze and visualize the division of sales between drug and food stores, ten drug commodities were selected to determine the percentage of dollar sales accounted for by each store type.

In 1952, of the total composite dollar volume for these ten drug commodity lines, 61 per cent went through drug and proprietary stores, while 39 per cent came from food markets handling these ten product classes. Each year the food store share for these same ten commodity lines has crept upward, and for 1955 there was nearly a fifty-fifty division of sales. Of the almost $600 million in volume for these ten lines, 51 per cent came from drug and proprietary stores and 49 per cent from food stores.

Chart 2 (Division of Sales Between Food Stores and Drug Stores—by Area—10 Major Drug Commodities) breaks down still further the division of composite sales for these same drug items by seven marketing areas of the country. Each one, in general, shows the same pattern of growth by food stores in the sale of these products. In 1952, in only one area, the Southwest, were food store sales for these ten commodities greater than drug store volumes. By 1955, however, food outlets in the Southeast and Pacific regions had joined the Southwest in reporting a larger share of sales than drug stores on these commodities.

Combined drug and food store dollar sales on these ten commodities have increased substantially since 1952, showing a 23 per cent gain nationally. All market divisions shared in this sales improvement, with the most pronounced gains reported in the West Central and Pacific areas.

In spite of the over-all 49 per cent share of food stores in the sales of these same ten drug lines, when the figures were further analyzed and computed on a *per-store* basis, there was still a considerable margin of sales in favor of *each drug* store compared to *each* food store. The 56,000 drug and proprietary stores of the country retained 51 per cent of the sales of these ten commodities in the face of their distribution in anywhere from 150,000 to 300,000 food stores. Chart 3 (Sales-Inventory Relationship—Composite of 10 Drug Commodities) brings out two important marketing facts concerning these two types of outlets.

First, the average monthly sales *per drug store* for these ten product classes combined was 906 units or packages. Compared with this figure, the average monthly sale *for each food store* stocking these same products was 190 units. Thus each drug store, roughly, sold a little less than five times as many packages of these items as did each food store handling them.

Secondly, each drug had an average composite inventory of 3,815 units at the end of a given period last year, and each food store involved in this study averaged 469 units in stock. Although selling less than five times as many units, each drug store was found to carry over eight times as many units in stock as the

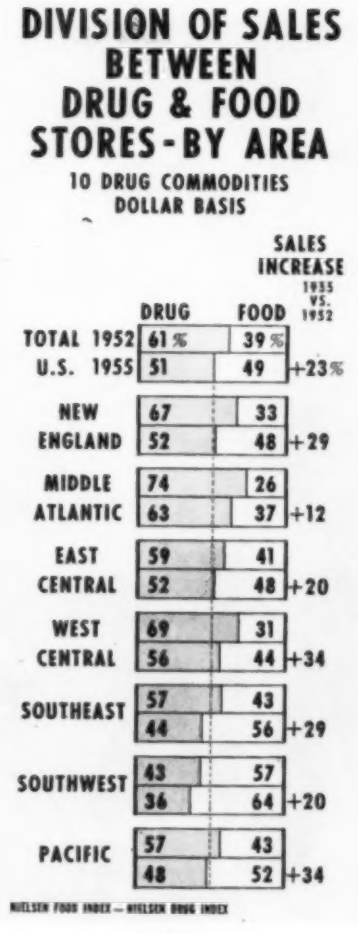

DIVISION OF SALES BETWEEN DRUG & FOOD STORES - BY AREA
10 DRUG COMMODITIES
DOLLAR BASIS
SALES INCREASE 1935 VS. 1952
DRUG
FOOD
TOTAL 1952 61% 39%
U.S. 1955 51 49 +23%
NEW ENGLAND 67 33 52 48 +29
MIDDLE ATLANTIC 74 26 63 37 +12
EAST CENTRAL 59 41 52 48 +20
WEST CENTRAL 69 31 56 44 +34
SOUTHEAST 57 43 44 56 +29
SOUTHWEST 43 57 36 64 +20
PACIFIC 57 43 48 52 +34
NIELSEN FOOD INDEX — NIELSEN DRUG INDEX

CHART II

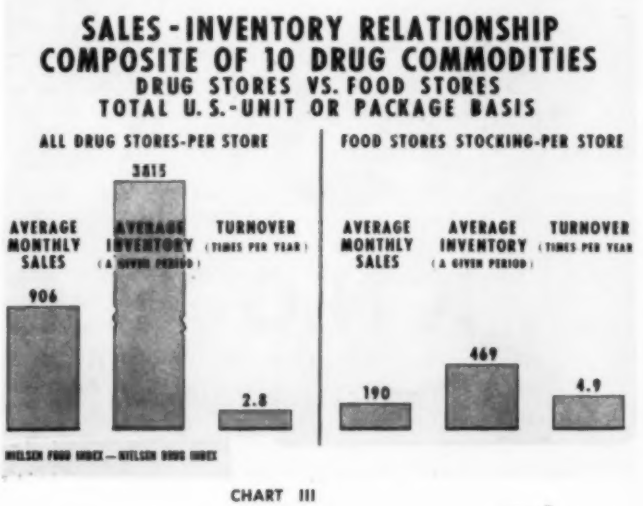


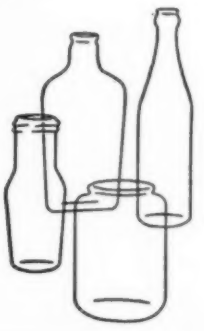
CHART III

GLASS PACKAGING

with a flair for the

FUTURE

Increasing competition emphasizes the need for progressive product packaging. At Knox we think in terms of tomorrow . . . by incorporating design advancements into our glass containers. Knox's glass packaging makes your product stand out, stimulates sales. Let one of our representatives give you the Knox story of new horizons in glass packaging design.



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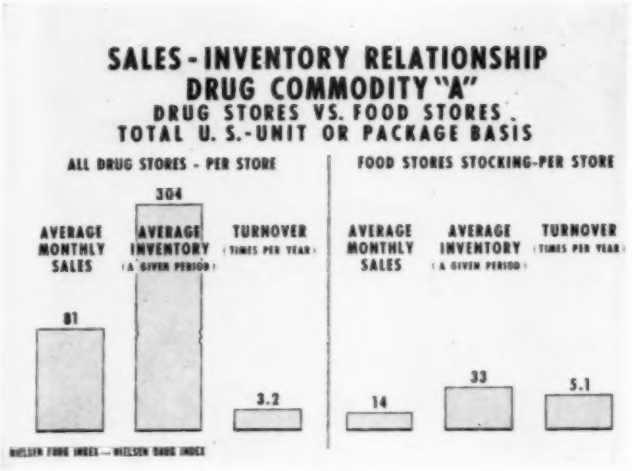

CHART IV

average for each food store handling. The inevitable result, of course, was a *turnorer* factor greatly in favor of the food stores. Their relatively small inventories turned nearly five times each year, as compared to less than three times for the drug stores. This meant that while the food stores sold far fewer units per store they transacted their business with a much smaller investment in stock and turned it more frequently.

Applying the study outlined in the foregoing section to a specific commodity—one of the ten used in the composite figures—look at Chart 4 (Sales-Inventory Relationship—Drug Commodity A) which shows these figures.

On the same basis as the previous chart, we see that each drug store sold 81 units of this commodity line, each month, compared to fourteen units for each food store which stocked it. This was a little less than a six to one ratio in favor of the drug stores. Inventories carried averaged 304 per drug store to only 33 per food store. This is about a nine to one ratio which must be considered in favor of the food stores, since, just as in the foregoing composite chart, it represented an annual turnover of 5.1 times for the food stores to 3.2 times for the drug stores.

As to the whys and wherefores of this varied sales-inventory relationship of drug stores and food stores, let us look at Chart 5 (Relative Importance of Nationally Advertised Brands). Here we have taken five of ten commodities used in our composite chart and listed the sales shares accounted for by the major nationally advertised brands in each commodity group, for both types of outlets.

It is immediately apparent that food stores have concentrated their merchandising efforts toward the major brands, and these leaders have captured 77 to 98 per cent of commodity line sales. In drug outlets these same brands ranged from 56 to 85 per cent in share of total. At the risk of being repetitious, let us repeat here two important conclusions to be gleaned from Chart 5, and from several of the prior charts.

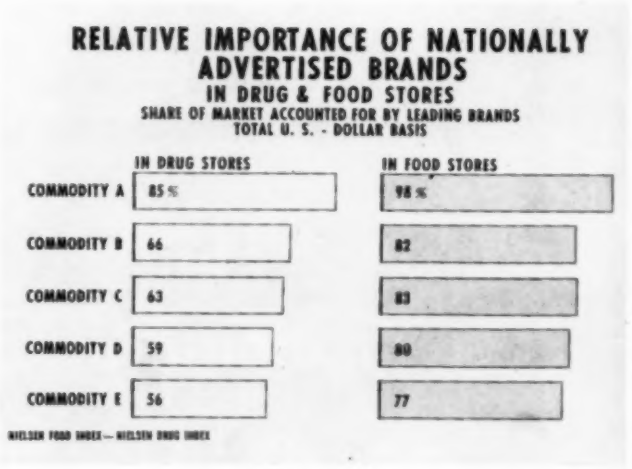

CHART V

One is that by concentrating heavily on nationally advertised merchandise in the health and beauty aids departments, food stores have achieved *turnorer*. Their investment in stocks on hand is consistently lower than for drug stores, and this fact, coupled with rapid turnover of the national brands, make the sale of these commodities profitable for food stores.

Another inescapable conclusion is that to this concentration on national brands is due much of the success of the food stores in obtaining nearly 50 per cent of the sales of this group of drug commodities. According to various reports, from two-thirds to three-fourths of all buying decisions relating to drug items are made right in the food store by shoppers—a prime example of the importance of *impulse buying*.

Since a large majority of the brands handled by food stores are nationally advertised and actively promoted, they are "presold" to the consumers, and their selection from handy, convenient displays involves little indecision or mental effort on the customer's part. As proof of this, food store sales for these items continue their steady growth, year after year, and the food store share of the total market for these products has nearly reached the midpoint.

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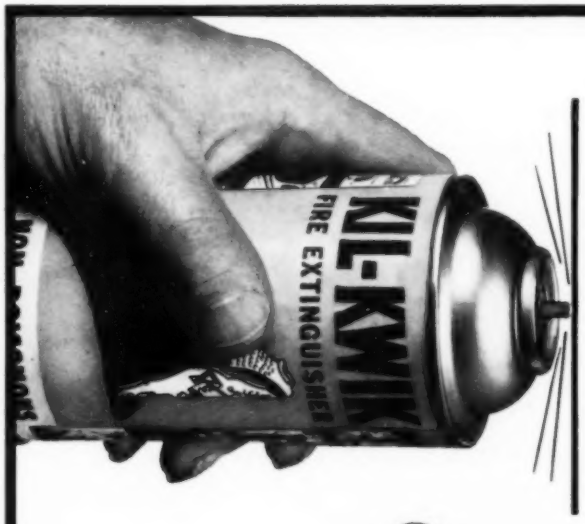

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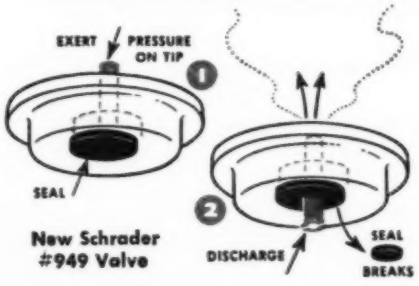

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Sales-Building Packages for Vitamins

Apothecary bottles and jars being used by vitamin manufacturers as packages for their products underscore the dynamic force of packaging as a marketing tool. Such packaging has influences far beyond point-of-sale. It can even tend to form desirable habits in the consumer.

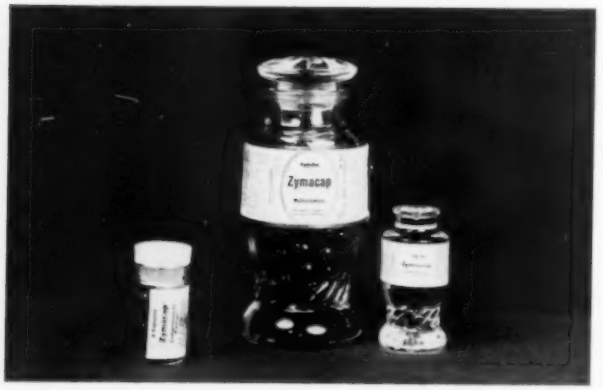
Lederle Laboratories, which recently introduced its Gevral brand of vitamins in a decorative Jubilee Jar, has stated that one of the objectives of this package is to put vitamins in their proper place—on the family dining table. Thus, the jar can help to achieve maximum consumption of the product by being a constant reminder for the entire family to "take their vitamins." And since the jar may be re-used as a decorative container, it may tend to stimulate repeat sales.

"The attractive design of the Jubilee Jar and its re-use as a container for candy, condiments or toiletries is expected to increase over-the-counter sales of our Gevral vitamin-mineral supplement," according to Kenneth Appel, new products manager for Lederle. "In addition," he states, "multi-vitamin supplementation may be made more acceptable and regular since this jar is specifically designed to take its place on the dining table where it will not be overlooked."

Manufactured by Hazel Atlas Glass Company, the jar is made of milk white glass, has a white plastic cap and a simple gold label with classic Roman lettering in blue. Lederle supplies retailers with a plastic display stand, each jar being individually protected in a cylindrical acetate package.

Another ethical house, Upjohn, is using apothecary bottles for packaging its Zymacap and Unicap vitamins, and a proprietary firm, Miles Laboratories, is packaging its One-a-Day vitamins in these bottles.

A recent advertisement by Upjohn, directed towards druggists, states, in part: "In the 250 size alone, sales (of Unicap) in 1955 were up 51 per cent over sales in previous years. Behind this remarkable jump in sales is the new Unicap 250 package, the unique apothecary bottle that appeals to young and old . . . This new package is another step Upjohn has taken to help you keep the vitamin business in the drug store, where it belongs."



In this advertisement, Upjohn makes additional use of the package by suggesting that it will tend to help the druggist hold his own in the face of increasing efforts by door-to-door salesmen and mail order houses to capture a large part of the $225,000,000 market for vitamins.

Packaging and Selling

Developing and Introducing a New Product

There is probably hardly anything more important today in managing a business than to develop a formula for projecting a new product and a technique for its introduction. It seems to be more and more the case that retailers and the public do not want a product that is much more than a year old. And yet it is the critical and frustrating problem of retailers that they are constantly flooded with a superabundance of new and duplicating products. The most frequent complaint of retailers is that their stores do not have rubber walls.

In spite of this, everybody in business knows that as long as this exhilarating zest for always something new continues as a part of the present social and buying attitude by the public that neither the retailer or the manufacturer dare neglect the need for something always new.

It is intertsting to observe the attention that is now being directed in business circles toward introduction of a new product. It is becoming the preferred subject in convention talks, in market research, and in business paper articles.

Just recently, in a talk labelled "How to Sell a New Product to Women," George J. Abrams, Vice President of Revlon, Inc., went to the fundamental problem in introducing a new product. He had this to say: "Why is it that marketing men in their haste to bring out a new product forget this simple fact—that a new product has no right to exist unless it can offer more advantages than existing brands. That it must in some way stand out from the crowd . . . in formula, in price, in packaging, in promise. That it can't succeed if its a 'Me, too' or a 'Johnny-come-lately' imitation.

A speaker at a recent meeting of the Wholesale Grocers Association estimated that the cost of introducing a new product varies from $1,000,000 to $20,000,000.

The head of one of the major soap companies stated in a recent annual report that he was not interested in a new product unless it would justify an initial expenditure of $5,000,000 in just advertising.

Of course, the cost of launching a new product varies enormously with the size of the company, with the nature of the product, with the character of the market and with other factors. New products are put on the market every day by small companies at a very moderate cost. The truth here is that most of these smaller companies are completely skipping a great many of the necessary preliminary costs encountered by the big company when they introduce a new product. In spite of these omissions, it is probably true that in proportion to their sales volume, it costs the little company just about as much as the big company to get a new product started.

There have been various figures and statistics which show the infant mortality of new products and the presumably small percentage of these new products which last for more than a year or two. This rate is supposed to be less than two per cent, for food products and we would guess very much less than that for cosmetics.

Interestingly enough, the big companies who spend a great deal of money in laboratory research, panel testing for the product and the package, market research and in heavy initial advertising and promotion expenditures, do not seem to be any more successful in producing a long life, successful new product than any of their successful small competitors.

In spite of this obstacle course for new products, it is still true that both the retailer and the public welcomes an inspirational idea in a new product in regard to the quality of the product or a new functional use, a new theme or a new package design. For anything new, even though it is a minor variation of a product in existence, the channels of distribution open readily today and at moderate expenses.

The speaker at this food convention used Dial Soap as an example of the many steps which a new product goes through before it is born into commercial existence. These steps are:

1. The product idea
2. Laboratory research
3. Consumer research
4. Preparation of the market plan
5. Development of advertising strategy
6. Development of the merchandising program
7. Marketing technique
8. Marketing expansion.

In a recently published booklet, with the title, "Winning Chain Store Distribution for New Products," E. B. Weiss, Director of Merchandising, Doyle, Dane, Bernbach, Inc., has made an analytical study of the problems of introducing a new product and its continued success from the retail viewpoint and principally that of the leading chains.

According to Mr. Weiss, a new product is one that has not existed previously or is so totally changed as to obsolete most existing items or it is a product that

NEW! Colorful Plastainer Jars BY OWENS-ILLINOIS

Attractive new Plastainer jars are available in clear plastic and a wide variety of opaque and transparent colors with screw caps in matching or contrasting colors.

Plastainer jars stack easily and securely . . . cap design gives stability against accidental jarring or tipping.

Many color combinations are possible with 4½-ounce Plastainer jars and screw closures . . . tight-fitting cap can match jar's color, or contrast for distinctive touch.

Owens-Illinois packaging know-how and high-quality standards offer you the *finest* in plastic molding facilities . . . Injection molding . . . Compression molding . . . A complete range in plastics for packaging, for specialties.

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Birmingham . . . Alabama	Fresno . . . California	New York . . . New York	St. Louis . . . Missouri
Boston . . . Massachusetts	Hartford . . . Connecticut	Oakland . . . California	St. Paul . . . Minnesota
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Charleston . . . West Virginia	Indianapolis . . . Indiana	Omaha . . . Nebraska	San Francisco . . . California
Charlotte . . . North Carolina	Jacksonville . . . Florida	Peoria . . . Illinois	Seattle . . . Washington
Chicago . . . Illinois	Kansas City . . . Missouri	Philadelphia . . . Pennsylvania	Toledo . . . Ohio
Cincinnati . . . Ohio	Los Angeles . . . California	Pittsburgh . . . Pennsylvania	Yakima . . . Washington
Cleveland . . . Ohio	Louisville . . . Kentucky	Portland . . . Oregon	
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AN (I) PRODUCT

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has been changed in some degree of quality, design, color, size, etc., or it may be a product that has not been previously stocked by the chain. Basically, a new product is one that has some new variation in its package, in its method of application, in its functional use, a variation in its quality or a new theme.

Here, according to Mr. Weiss is what chain managements look for in new products.

a) Does the product offer something new and exciting to promote?
This, of course, is both the primary and permanent concern of the retailer.

b) What costs are involved if this new product is added?
With the increasing physical limitations in the retail store, and the increasing flood of new products offered to them, obviously the cost factor is becoming vitally important.

c) Will the new item cater to known and expanding demand by the shopper—and by enough shoppers to constitute a market?

d) What about square foot contribution?
This, of course, is a growing retail headache. Package competition for floor and display space is increasingly ferocious.

e) Will the new item merely duplicate items or sizes or prices of lines already stocked?
It can be said that 90 per cent of the new products promoted each year by the cosmetic industry are duplications. These variations from the products already stocked are so slight or so unimportant or so insignificant as to leave both retailer and consumer cold.

f) What about quality?
In our experience this is not a question that is too often predominant in the retailer's mind. Certainly, in comparison with such factors as promotion opportunities of the product, this is becoming increasingly true. But as Mr. Weiss points out, retailers can not go along on the notion of accepting and stocking a new product unless the quality will bear repeat sales. We are a little bit cold toward the idea that the retailer is very much concerned about his customer getting a superior product. We do think however that he is becoming more and more concerned with his own cost in stocking and promoting short-lived products. Mr. Weiss also states, "that it constantly amazed the chains to find that new items put out by companies with modern laboratories, with wonderful facilities for market testing, etc. are loaded with imperfections." We think if the retailers were better acquainted with some of these big suppliers, they would not be so startled.

g) What about value?
This means the ambition of the chain to offer better value than competition."

h) Will it help the chain to trade-up?
This is something that chains may be interested in at the present time. However, the way they are going overboard for trading stamps, premiums, gimmicks and gadgets, and everything that comes their way for promotion, we do not think that this particular point can carry much weight in management's selection of new products.

i) What about customer service?
This really means, does the new product have a visible appeal, or a functional service that is superior to other products now being sold.

j) What about appeal to "variety?"
Even though variety means an increase in inventory, chains are increasingly aware of the importance of variety or a choice of selection of products in order to keep retail traffic. This is particularly true in the food super market. Variety may consist of a number of brands or the number of sizes.

k) What about the new price line angle?
In a sense this is a part of variety.

l) What about the brand status?
If the new product bears the name of a recognized brand, obviously it has an initial advantage for retail consideration.

It is statistically true that the vast majority of new products introduced languish or die within a few months. It is equally true that the vast majority of these new products have been developed haphazardly, with guess work and with intuition and with very little planning.

We are in a mighty bad way when the new product, even though it does not contribute anything new in function or package, is essential to continued business prosperity, both for the retailers and the manufacturers. Knowing this, the manufacturer does not dare to fail in bringing out a new product at regular intervals. The retailer does not dare close his mind to the new products or fail to examine them with alert anxiety.

A great many formulas and techniques are developing to aid manufacturers in producing a new product and retailers in determining its worth. Out of all this mixture of suggestions and recommendations, every manufacturer and every retailer, big or little and no matter what size, can certainly work out for himself a schedule of guidance which will save him time and money and certainly multiply his chances for success.

Another Old Name Changes

Another fine old name in the cosmetic business has gone into the hands of a new owner and will enter a totally different merchandising environment. Lentheric is just one of a succession of long established cosmetic names that has been passing into an ownership environment, which, in the opinion of practically everyone in the trade, will eventually mean a totally different kind of company.

In purchasing Lentheric, Willard Gidwitz, Helene Curtis president, said, "The addition of the Lentheric line is an important step in our program of expansion and diversification." Earlier during the year the company acquired Kings Men, a line of men's toiletries and Stopette deodorants.

After operating for more than twenty years as a subsidiary of E. R. Squibb & Sons, Lentheric has been under the direction during the last few years of the Olin Mathieson Chemical Corporation. During this

New Perfection

DROPPING PARTS

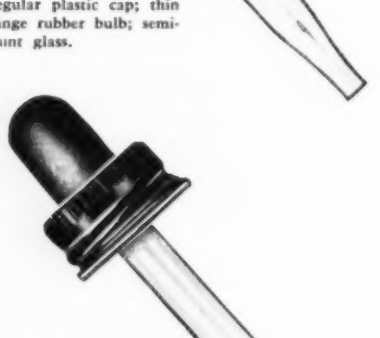
Simplify Your Packaging Problem

#1

Non-rolling, extra-depth, Bakelite cap; thick-flange rubber bulb; Saftee-ball glass.

#3

Regular plastic cap; thin flange rubber bulb; semi-blunt glass.



#4

Metal cap; oil - resistant AMEKINE synthetic rubber bulb; blunt glass.

New Modernistic bottle. Designed to lie flat for convenient labeling. Oval front provides ample label space.

The wide variety of sizes, styles and colors in New Perfection's complete line of dropping parts offers the answer to your packaging problem. Each component part is designed to present and administer your product in the most attractive, convenient manner. We supply dropping parts to fit your bottles or furnish the complete unit.

DROPPER GLASSES CAN BE

CALIBRATED

IN COLOR

An inexpensive extra that adds great convenience to the use of your preparation. The dosage you desire in the color you specify is accurately and permanently printed on the dropper glass. Trade-marks and firm names can also be imprinted.

#2

Non-rolling, extra-depth Bakelite cap; thick-flange rubber bulb; special bent glass, plain or CALIBRATED.

RUBBER BULBS are supplied in many styles and colors. Oil-resisting AMEKINE synthetic rubber is used for oil preparations; natural rubber is supplied for other products.

CAPS of plastic or metal can be furnished in a complete range of sizes and colors.

DROPPER GLASSES are available in a wide variety of styles and sizes; plain or CALIBRATED in any color to mark specific dosages.

BOTTLES in an attractive modernistic style in Amber, Blue, Green or Clear glass are available, with dropping parts, in the following sizes: ⅛, ¼, ½, 1 and 2 oz.

Write for Samples and Quotations

PENNSYLVANIA
GLASS PRODUCTS CO. INC.

"Glass Goods of the Better Kind"

430 N. CRAIG ST. • PITTSBURGH (13), PA., U.S.A.

period Lentheric has had a program of aggressive expansion in sales and distribution and diversification into non-fragrance lines.

According to a report in Advertising Age, Lentheric contributed to the total of $560,000,000 sales on Olin Mathieson about $7,000,000, and again according to this publication, subtracted rather than added to the $44,000,000 net profit of Olin.

Again quoting this publication, "Lentheric tried to have its cake and eat it, too. On the one hand it zealously guarded its reputation as a high-quality 'class' house; on the other hand it began to compete in the mass market. Trade observers say it failed at both ends." Just recently Lentheric switched from direct selling to selling to wholesalers. This brought a seventy year old perfume company into a multitude of outlets hardly compatible with their previous history.

Costly Service

Herman C. Nolen, president of McKesson & Robbins, Inc. in a recent talk on marketing had a number of interesting things to say about distribution. We think the following is prophetic. "The relatively high cost of distribution—generally stated to be about sixty cents of the consumer's dollar—is another problem which we must face. Why are these costs disproportionate to those in the production field? One reason may be found in the increasing demand for more extensive and expensive services. We may, in fact, be over-servicing our customers. The idea that the consumer is king has been, I believe, a most costly notion of businessmen. Customer cost analyses and selectivity are destined to assume much greater significance to merchandising executives. Many types of special services must be studied in relation to their sales-producing possibilities. What the self-service supermarket is doing to the neighborhood grocery store is indicative of what can happen when consumers begin to weigh the value of special services against the cost involved."

We should like to add to Mr. Nolen's comments the fact that the Discount House and the Farmers' Market is showing, with increasing vigor, the fact that many customers are not at all interested in many superfluous services and do not want to be king if it costs them money.

We must soon make a sharp distinction between necessary or utility products which need no service of any kind and which must be delivered to the customer with a minimum of intervening services and those shopping products where the customer wants and requires specific services, such as personal instruction, help in selection and demonstration.

Too Much Competition

We wonder just where a new policy of the California Packing Corp. is leading. This company is now experimenting with a "second brand" for some of its canned food. The "second brand" is supposed to be an ideal answer to a retailer's private label and it also is supposed to give a brand of good quality, but with a price shaved to a lower level.

This "second brand" is supposed to be a "fighting brand" either to meet manufacturer's competition or to provide private label competition.

The epidemic of "self-competition" which hit this trade, particularly in such things as shampoos and tooth paste, seems to be slowing down. While self competition had its advantage to certain manufacturers with overwhelming ambition and surplus cash for advertising, there was a tendency to jump the gun with too many brands in self-competition.

We think that this "second brand" has even less prospect for a rosy future. Over a period of time it does not seem to us that either the retailer or the consumer will approve a national producer trying to sell something less than their best for no other reason than a weapon to use against competitors.

Fragrant Men

American men use more perfume products today than ladies. This was the opinion of Dr. Oliver Martin, chief perfumer of Shulton, Inc. According to Dr. Martin, out of the total outlet for all shaving products of $275,000,000 about 10 per cent or 27 million go for after-shave lotions.

While we believe that the total after-shave market does run at $27,000,000 or even a little larger, this is still quite a way off from the total of $80,000,000 spent by women for perfume, cologne and toilet water.

We agree with Dr. Martin, however, that the men who are consistent users of an after-shave lotion do use far more fragrances than any equal number of women use any form of fragrance.

We probably have several million men in this country who use a fragrance product, that is an after-shave lotion or a cologne regularly and consistently every day. We do not have as many as seven million women who use any kind of fragrance as consistently as this. Again, if we measure fragrance in gallons instead of in dollars, we agree with Dr. Martin that the after-shave lotion market would be the largest single fragrance market in existence.

Customer Loyalty

There has been a great deal of talk about customer loyalty for manufacturer's brands. The net result of most of these surveys have indicated a low ebb at this time for customer loyalty toward many trade mark products.

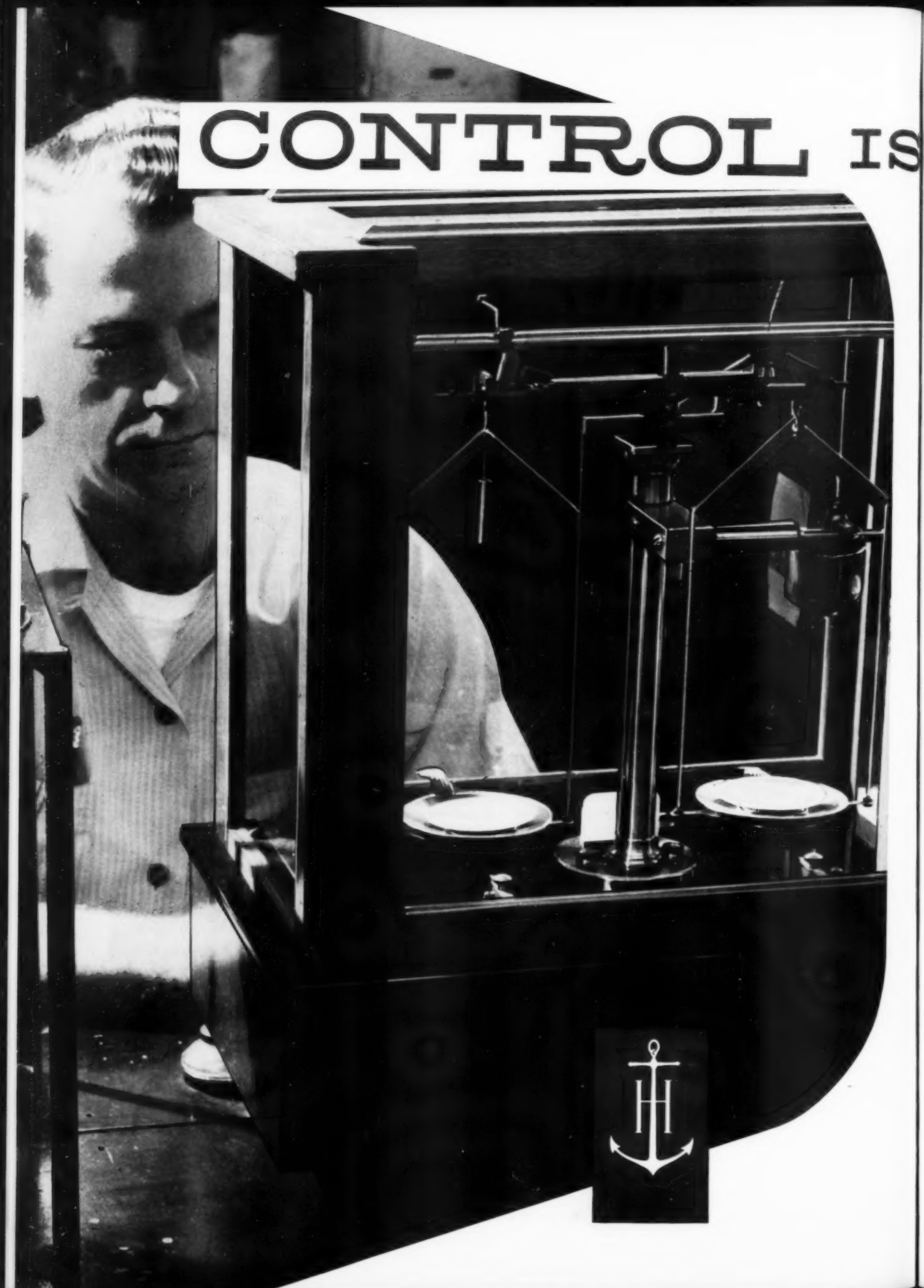
Now we have some insight on the customer's loyalty toward a retail store.

Just recently the newspaper, The Richmond Times—Dispatch, made a survey to determine the degree of customer loyalty to the two main department stores in Richmond, Va., that is Miller & Rhoades and Thalhimers. These stores are about the same size, each do 28 million in annual sales and they occupy adjacent blocks on the same street in the central business district.

The net result of this survey: "We conclude, therefore, that the loyal customer is so rare as to be a negligible factor in the total sales or sales potential of any given store."

In a recent article in this magazine headed "Vanish-

(*Continued on page 649*)


CONTROL IS

ing Customer Loyalty" we pointed out what a heavy burden on advertising diminishing customer loyalty was placing. We remarked further that the big problem of both the retailer and the manufacturer today is that they must create a new customer for each new sale. This most recent survey seems to bear out that viewpoint.

Lower Living Costs?

The National Super Market Non-Food Exhibit is being held at the New York Coliseum with three thousand supermarket operators and distributors in expected attendance.

These visitors will pass under a big red-lettered marquee which proclaims: "Your supermarket buyer is here today lowering the cost of living tomorrow."

Tomorrow is right. We have not seen any convincing data that the development of the supermarket has in any way decreased the cost of distribution of packaged brands and products and brought to the consumer lower prices. In fact, an industry spokesman at this show made the statement in connection with the trend toward making the supermarket into "junior department stores" that "there is a higher mark-up in non-food items, which are not perishable. Take fruits and vegetables; you've got to sell them or you're lost. With housewares, you just dust them off."

It Could Happen to Ethicals

There is a report in the trade, which may be just another one of those rumors, that a leading cosmetic manufacturer will purchase, around the first of the year, a leading ethical pharmaceutical manufacturer.

This cosmetic company has had a truly fantastic success, probably unequaled for velocity of growth in the entire history of the cosmetic industry. This company has an amazing flair for advertising and a compelling ability to hold the interest of consumers.

At the same time this cosmetic company has shown a ruthless monopolistic speed in building up its business. The advertising has been used as a merciless club on the retail trade and the company is always in hot water with the government or a competitor on borderline legal questions.

If it should be true that this cosmetic company, which now has Wall Street's interest, should take over this large and venerable pharmaceutical company, it will be one of the most interesting things that have happened in the history of merchandising to watch what will take place when this vigorous and ruthlessly competitive cosmetic company approaches the problem of ethical marketing.

Knowing these people quite well, it seems to us that any one of several things can happen.

It is possible that the ethical products, which have any merit and which can only be sold with a doctor's prescription, will be spun off and sold to some other pharmaceutical manufacturer. This will leave the proprietary products, the household articles, and the toilet articles, such as toothpaste, for development into mass distribution with the advertising genius which these people will undoubtedly bring to the new company. This would seem to us the least likely development.

It may be that the pharmaceutical company will remain intact as a separate division with an effort to maintain the ethical side of the business, but with the addition of an aggressive policy to develop under this ethical name a series of advertised brands. This could work out very much in the manner in which Bristol-Myers has its Bristol laboratories and Bristol-Myers with proprietary drugs and toilet articles.

It could even be, and this we admit may be far-fetched speculation, that a new element would be added to ethical marketing.

It has been on the record for everyone to see that doctors can be influenced to an enormous extent by direct contact with the consumer. This has not yet happened with paid advertising, but it has happened specifically through medical articles in consumer publications, notably in the Readers' Digest. What would happen if a very powerful advertiser, making use of a fine old prestige name with years of reputation, research, and accomplishment, should plan through intensive consumer advertising to influence a doctor on ethical products?

Would many doctors object to an increased flow of patients to their office? In the long run, would they resist any more the power of advertising than has the most rock-ribbed independent retailer?

Costly Whiskers

There is no ceiling to the ingenuity and no limitation to the brilliant imagination of business in this most wonderful country. Where else in all the world could there be found a company who would pay $5,000 per ounce for the privilege of shaving your whiskers on a national T.V. program?

In a very short time the eager American television audience will have the privilege of watching a Ronson program in which this will actually happen.

If you would like to participate, here are the qualifications. No professional experience is necessary. You must be over 21 and your beard at least three months old. If you are accepted, you will receive, in addition to the $5,000 per ounce, an all-expense-paid trip to Hollywood and a two-day stay at famous Beverly Hills Hotel.

To apply: enclose a few strands of your whiskers, your name, address, and occupation with a close-up snapshot showing full beard, to Ronson.

Broader Drug Markets

We have many times advanced the opinion in this department that wherever there is a bug there is a market for the drug industry. It is true that this industry has been advancing into a number of new fields, notably that colossal market of plant diseases, but there still remains a vast and unexplored market in many industries where problems arise from microbes, funguses, or viruses. Now we hear that a company called Bex Industries has developed a new chemical "capable of destroying all known disease-producing bacteria on contact." This chemical is to be added to plastic, rubber, paper, textile, paint and other products during manufacture, rendering the articles permanently self-sterilizing.

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NEWS IN PACKAGING...

Trade Mark as Merchandising Aid

Trade mark redesign to meet new merchandising demands is of growing interest and concern, according to a pilot survey by the office of Harry Lapow, package design consultant. The survey, which went to top executives of leading firms in twenty-three varied fields, disclosed that trade mark modification was considered desirable by 92 per cent of those reporting.

Among those who had effected trademark change, 67 per cent laid emphasis on greater trade mark recognition in package design. A slightly lesser percentage (54 per cent) regarded trademark change as important in printed media and eight per cent cited its impact on television presentation; 34 per cent of the firms said they had had to adopt their trade mark to the needs of self-service.

One manufacturer stressed that effective package and trade mark design at point-of-sale "materially increased sales." Another laid emphasis upon an "easy to read as you run" trade mark as essential for greater visibility in a competitive market.

Of those answering, 32 per cent indicated that trade mark change was a "pressing problem" while 60 per cent said it would be a good thing, though not necessarily vital. Eight per cent thought it unnecessary.

In another breakdown, 30 per cent of the responding firms disclosed they had substituted a new trade mark for an old one during the last five years while 46 per cent had modernized an existing one.

PDC Extends Contest Deadline

The Package Designers Council has postponed the deadline for entries in its 1956 Awards Competition until Nov. 26, Gerald Stahl, competition chairman, has announced.

"Requests for extension of time have been received from all over the country," Mr. Stahl said, "and we feel this additional period will allow ample time for everyone interested to participate."

The competition is open to designers, advertising agencies, product manufacturers, packaging suppliers and others in the United States and Canada who are concerned with the creation and production of mass-produced packages for consumer goods. Entries are being received at the Council's Award Headquarters, 12 E. 32nd St., New York.

Mgr. of Turner White Metal

Ambrose Y. Frantz has been appointed manager of the J. S. Turner White Metal Company, New Brunswick, N. J. He will be in charge of collapsible tube manufacturing operations.

"The twenty-five years of experience of Mr. Frantz in the manufacture, filling and closing of collapsible metal tubes will enable our company to provide broader and more effective customer service," J. E. Turner Jr. has stated.

AMBROSE Y. FRANTZ

Armstrong's Walsh Retiring

Thomas R. Walsh, Armstrong Cork Company Glass and Closure Division resident salesman in Providence for 17 years, is retiring, according to an announcement by Roger H. Hetzel, general sales manager of the division.

Lewis Heads Hazel-Atlas Div.

Executive vice-president of the Hazel-Atlas Glass Company prior to that company's recent merger with Continental Can Company, Howard G. Lewis, who has been elected a vice-president of Continental, in charge of the Hazel-Atlas Division, will continue to make his headquarters in Wheeling, W. Va.

HOWARD G. LEWIS

Drug Tubes Seen Topping '55

The collapsible tube industry's output for medicinal and pharmaceutical preparations will easily top that of 1955, judging by production figures for the first eight months of this year.

Tubes for pharmaceutical use are second only to those for dentifrices, according to Lester B. Platt, executive secretary of the Collapsible Tube Manufacturers Council. He reported 150,-971,184 units were produced through August of this year compared with 125,-535,888 units in the same period last year. In all of 1955, he said, 193,991,616 tubes were made for all forms of drugs. This constitutes more than 18 per cent of the total production of tubes for all purposes, which set an industry record of more than a billion units.

"The major drug producers use the metal tube because it keeps out light and air and maintains the potency of the product," Mr. Platt said. "Druggists like the strippable lithography which peels off quickly and cleanly, permitting him to put on his own labels with ease. And the consumers favor the tube's easy-to-handle shape because he is aware that the tube guarantees full protection against deterioration or harmful change to the packaged product."

Mead Johnson Director of Design

Lloyd L. Duke, formerly manager of package design for Mead Johnson & Company, has been promoted to director of design, and will be in charge of the newly created design department, according to an announcement by D. Mead Johnson, president of the company.

The design department will develop all new design concepts for the company, including package design, package engineering, and art devices used to create company visual identification in printed literature.

Schering Pkg. Devel. Engr.

Promoted to package development engineer of Schering Corporation is John Graham, formerly administrative assistant to the production manager, according to an announcement by Robert E. Waterman, vice-president of the company.

Mr. Graham will head a newly formed group which will study and coordinate all types of packages for marketing the company's pharmaceutical line. He and the group will operate under the pharmaceutical chemistry department.

(*Continued on page 655*)

Faster Aerosol Filling

A new high-speed continuous aerosol valve clincher, which operates at speeds up to 300 cans per minute, has been in use since October 1 at the Hobart, Ind., plant of Continental Filling Corporation. Developed by J. Allen Reynolds, vice-president in charge of operations for Continental, the equipment is being manufactured and installed in all filling lines at the company's plants in Hobart and in Danville, Ill.

"This development allows a smoother, faster filling operation which will greatly increase our plant capacity," declared Continental's president, Clarence F. Carter. "It will mean greater filling economy and speed of delivery than ever before."

For the first time valves can now be clinched at speeds far in excess of the needs of any present aerosol filling line. Such a development opens the way to exploration of speed-up techniques ahead of the clincher. Air or mechanically operated equipment available in the past has been limited to a maximum of 60 cans per minute. When pressed to this capacity, such equipment operated very roughly.

The new-high speed machinery provides uninterrupted clinching, without gaps between collett teeth, and reduces possibilities of future leaks from incomplete valve clinches or broken collett teeth segments.

Appointed at Gair L.A. Plant

James M. Berendt and Russell S. Aagaard have been appointed product sales managers and Robert M. Weaver, manager of sales promotion at the Los Angeles Carton Division of Robert Gair Company, Inc., H. G. Murphy, Pacific Coast sales manager, has announced. Mr. Berendt becomes sales manager of retail cartons and Mr. Aagaard of Gair-Reynolds Foiline products.

The Amber line of Parfums Charbert, Inc. has been re-designed by Ernst Ehrman Industrial Design, New York. Colors are white, gold and amber red. The six-ounce bottle was manufactured by the Owens-Illinois Glass Company. The cap was manufactured by Scoville Manufacturing Co.

Form Drug Packers Association

The Drug and Allied Products Guild, a newly organized association of drug packers, has elected Leonard Brown, of Mifflin Chemical Company, Philadelphia, president. Joseph F. Uddo, of F. Uddo & Sons Co., New Orleans, was named a director, and Stuart Lazarus, of Lit Drug Company, Newark, N. J., is secretary. Jack McCambridge, of McCambridge & McCambridge Co., Riverdale, Md., is chairman of the Membership Committee; Louis Mones, of Philadelphia Magnesia Co., Philadelphia, is chairman of the Committee on Complaints and Grievances; Claude S. Welton, of Purepac Corporation, New York, is chairman of the Nominating Committee; Jack S. Spielman, of Approved Products, Philadelphia, is chairman of the Committee on Trade Practices and Ethics.

Proposed projects to be undertaken by the Guild include exchange of credit information, and pooled purchasing arrangements. It is planned to hold an annual convention in April or May 1957.

O-I and Nat. Container Merge

Merger of Owens-Illinois Glass Company and National Container Corporation became effective October 4 with the filing of the merger agreement by the companies in their respective states of incorporation — Owens-Illinois at Columbus, O., and National Container at Dover, Del. Owens-Illinois is the surviving corporation.

With the filing of the agreement, Samuel Kipnis, former president and director of National Container, becomes a member of the board of directors of Owens-Illinois.

Hugh C. Laughlin, O-I executive vice-president and director, has been named president of National Container Mill Division of Owens-Illinois, which will operate National Container's paperboard mills and bag plants, and of National Container Corporation, a new, wholly owned O-I subsidiary, which will operate the corrugated shipping container plants. Mr. Laughlin said that other staff appointments will be announced in the near future.

Gair Appoints La Touche

Burford La Touche Jr., has been appointed plant superintendent of the Fibre Board Container Division, Richmond, Va., of Robert Gair Company, Inc., J. P. Greiveldinger, production manager of container operations, has announced.

Unusual Package for Fragrance

A new carton in which a bottle of cologne is held in transparent Plastafol and centered in a glistening Foiline frame as if suspended without support is enabling Roger & Gallet to create,

through its packaging, an impression of lightness and delicacy.

Developed by carton engineers of Robert Gair Company, Inc., the carton is produced at the Gair Cartons Div.

One frame is made of blue Foiline printed in gold fleur de lis and contains a bottle of Blue Carnation Cologne Magic. Three other fragrances are displayed in silver printed gold frames.

The name Roger & Gallet is printed on the outside top panel of the frame and the name of the cologne appears on the lower front panel.

New Anchor Hocking Plant

Wm. V. Fisher, president, Anchor Hocking Glass Corporation, announced that necessary acreage has been secured and plans completed for the building of a new glass container factory in San Leandro, Calif.

The company will build a warehouse immediately, followed by a modern, completely integrated factory, built to accommodate two 150 ton furnaces. Manufacturing operations will start with completion of the first furnace.

PMMI Officers

J. H. Richmond, president, Potdevin Machine Company, has been elected second vice-president of The Packaging Machinery Manufacturers Institute; K. B. Hollidge, executive vice-president, Arthur Colton Company, was elected third vice-president.

Patent THOUGHTS AND TRENDS

by Thomas Cifelli, Jr
PATENT ATTORNEY*

SOME PROGRESS ON DRUG PATENT PROBLEMS

The drug industry is not the only one which has its difficulties obtaining U. S. patents. However, there are two particular problems which the drug industry has which are of special importance to it:

1. The problems arising from efforts to obtain protection on intermediates prepared in connection with syntheses having numerous steps, and
2. Obtaining protection on new drug compounds and compositions.

Essentially, both problems involve the same basic difficulty, and that is proving *utility* to the satisfaction of the U. S. Patent Office. The question of obtaining protection on intermediates was considered in detail in the January, 1956 issue of This Journal. The step-by-step development of the problem was traced and the consequences not only to the drug industry but to society in general and chemists in particular were noted. Also, several courses of action were suggested, one of these being the development of understanding between the Patent Office and the drug industry.

It is gratifying to report that progress towards understanding is being made. This is indicated by the remarks which the Commissioner of Patents, Robert C. Watson, made at the recent national meeting of the American Chemical Society, before its Division of Medicinal Chemistry, in Atlantic City. While it appears from the published report of Commissioner Watson's talk that his remarks were directed mainly to the second problem noted above, the fact remains that efforts towards the desired understanding are being made.

Because of the importance of this situation, and because of the generally-accepted view that full discussion and consideration of various suggestions are desirable in charting courses, this article is concerned with a review of the entire situation, even at a cost of repeating some things which have already been touched on in these columns.

While the two problems have certain elements in common, they are nevertheless distinct and therefore are going to be considered separately.

The Problem of Drug Intermediates

It is, of course, well known that many syntheses require a number of steps for their completion. The synthesis of vitamin A and cortisone are two examples which come to mind. Simple materials are used at the start and increasingly complex intermediates are made. As each intermediate is prepared there are natural pressures calling for the disclosure of the information, which is good because society benefits from the new knowledge.

About a dozen years ago, patent applications on such intermediates generally had expressions to the effect that the materials were suitable for use in organic synthesis or some other such broad statement.

The Patent Office, by a series of increasingly more confining requirements, each one supportable by reason (as seen by the Patent Office) and law, finally took the position, which is the present one, that unless the patent application as originally filed contains a specific statement of utility of the particular intermediates sought to be protected, and such use constitutes an unexpectedly superior property as compared with the property of whatever reference compound the Patent Office may rely upon, no patent on the intermediates can be obtained.

When one considers that the *only* interest that the drug industry has in the particular intermediate in question is its potential use to make the desired ultimate drug compounds, such as cortisone, it is obvious that any requirement which forces the industry to scout around looking for some special property which the intermediate possesses and which is not possessed by the reference compound represents economic waste. If they look hard enough the inventors may find that their intermediate is a better shoe polish preservative than the reference compound. Also, it must be remembered that this particular use must be stated right in the application as originally filed in order to be considered. Consequently, public disclosures and patent applications on such intermediates are necessarily delayed.

Also, diligent search may show reference compound X to be the closest one but the Examiner might cite compound Y. Compound Y might be just as good for the stated use as the intermediate, thereby defeating the patentability of the intermediate and the "divining" efforts of the inventor.

It would seem that if the drug industry's high ranking *technical* representatives would take the necessary time and trouble to point out specifically the burdens posed upon it by the present status of the Patent Office requirements, the Commissioner of Patents would give remedial proposals careful attention. One such proposal might well be the acceptance of statements to the effect that the novel intermediate is potentially useful in a synthesis of the ultimate product according to a reaction sequence which is set forth. Such a proposal at one time was accepted by Patent Office rulings.

Drug Compounds and Compositions

Judging from the published report of Commissioner Watson's talk, he apparently addressed himself mainly to the question of utility as applied to the compounds or compositions which are intended as ultimate drug products. Commissioner Watson reportedly conceded that very little attention had been paid in the past to the requirement for disclosure of utility and that the Patent Office is not as lenient as it used to be on this point.

It appears that Commissioner Watson has discussed the problem with members of the drug industry and this very discussion is what is here regarded as the salutary development in this entire matter. The drug industry apparently has suggested that patents should be granted for pharmaceutical

* Richards and Cifelli, Newark New Jersey.

inventions that have "scientific" utility as distinguished from ultimate and commercial utility. And Commissioner Watson is reported as having taken the position that he is not certain that he understands just what is meant by this term but nevertheless the Patent Office is studying this suggestion carefully.

In brief, in order to obtain a patent on a new drug compound or composition it is now necessary not only to make a more or less specific assertion concerning its therapeutic value but also to present supporting evidence commensurate with the assertions. In other words, statements concerning sunburn prevention or sunburn alleviation will not require as strong a showing as statements alleging cancer cures.

Discussion

It seems reasonable to draw the conclusion that the main concern of the Patent Office in making such stringent requirements concerning utility is to protect the public against "phony" claims for cures. No one can object to such a motivating factor.

One may well ask, however, whether the present drastic requirements do in fact protect the public against the use of patents to help promote phony medical cures.

Let us take a brief look at this angle:

For one thing, from the practical point of view, the drastic requirements are hurting the *responsible* elements in the drug field. These are the pharmaceutical and chemical companies which recognize their responsibility to the general public as well as to their stockholders. On the other hand, there is nothing to stop an irresponsible patentee from making unfounded statements in his exploitation of his patents rights, for example, by claiming that his patented compound which may have been granted on the basis of its being a useful plasticizer is also useful as a cure for skin cancer.

It would be interesting to see what develops from any further considerations of these questions. Perhaps, one of the following considerations will lead to a solution:

1. Since the Examiner can require the deletion of any statement alleging a utility which has not been proved or refuse to grant a patent to an applicant who refuses to delete an unproved statement, it would seem that the Patent Office has a powerful tool in the public interest at its command. Perhaps, the Patent Office in the future will rely more on its authority to require or enforce the deletion of unproved allegations, still however granting patents on statements of potential or scientific utility.

2. Perhaps, out of all of this discussion will come a realization on the part of the Patent Office that in spite of the drastic rules on utility, not applied against the drug and chemical industry until comparatively recently, the American inventing public and the general American public both had a high opinion of the Patent Office. This is so even though one can point to a number of so-called frivolous inventions which have been patented over the years and probably will continue to be patented in the future. While the attitude of the Patent Office believed to underly the utility requirements, namely, to protect the public, is of course commendable, it does happen that another Federal Agency, the Food and Drug Administration, is specifically charged under the 1938 Federal Food, Drug and Cosmetic Act with responsibility for seeing that the public is protected as regards new drugs. Indeed, another agency, the Federal Trade Commission, also has jurisdiction by reason of its control over advertising claims. In other words, a reassessment of the Patent Office position may well result in the Commissioner deciding to concentrate on the traditional function of the Patent Office to inquire into the question of invention and novelty, leaving the matter of utility as a requirement easily met by general statements in patents and leaving the correction of any unfounded claims and any unsafe remedies to the Food and Drug Administration and the Federal Trade Commission, which are equipped not only to evaluate these matters but also to take whatever legal steps may be necessary to punish violators.

3. Finally, in any reassessment of its policy, the Patent Office doubtless will wish to consider whether its present position on utility, which presumes that a compound has no utility unless specifically proved otherwise, squares with the general American concept of justice, which presumes that a person is innocent until proved guilty, the theory of the latter presumption being that it is better that 100 guilty people escape rather than one innocent person be unjustly punished. It would appear that the many ethical drug interests are being "punished" because of the small minority who might abuse the patent privilege.

4. A showing that a drug has effectiveness against animals may be accepted as adequate utility for patent purposes. There is adequate precedent for such a position, for in 1942, the Court of Appeals for the District of Columbia in *Canadian-American Pharmaceutical Company v. Coe*, held, in a case where Ensol was used to reduce the pain of cancer and it was shown that it caused no serious harm, that sufficient utility to entitle the inventor for patent had been shown even though there was evidence which indicated that it did not check the growth of cancer tumors in mice and rabbits.

It is not even here being suggested that the Patent Office go this far. It is rather suggested that if a showing can be made that a product is effective in animal tests, claims stating that the product is so effective on the animals would seem to be warranted. Later, after the patent has issued, if it is shown that the compound also is effective against human beings, and someone attempted to utilize the compound in connection with the treatment of human beings, the patentee would be protected because all he would have to show is that the infringer made, used or sold a compound covered by the patent claims and that the compound was effective against animals.

If, on the other hand, the patentee or anyone else made unwarranted claims as regards the effectiveness of the compound in human therapy, the FDA and the FTC, and possibly the U. S. attorney could be relied upon to protect the public.

Carter Pressurized Cream Patent

Interest in this patent was kindled anew recently by the action of the U. S. Supreme Court in refusing to review the decision of the Court of Appeals for the 4th Circuit, which upheld the validity of Carter Products' patent, U. S. 2,655,480, covering "Rise" shaving cream, and also held that the patent was infringed by Colgate-Palmolive and others, and furthermore that Colgate had misappropriated certain trade secrets.

In view of the wide-spread interest it might be well to review the situation as it stands publicly at the moment.

In the December 1953 issue of This Journal the patent was considered in detail. It is believed sufficient for present purposes merely to set forth claim 1, which appears to be the broadest of the 21 claims allowed in the case.

(Continued on page 720)

408...

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NEWS...

Hospital Honors Scheele

Dr. Leonard A. Scheele, president of Warner-Chilcott Laboratories and former U. S. Surgeon-General, received the East Orange, N. J., General Hospital's Meritorious Service Award, October 24, at the hospital's annual trustee dinner.

The award was presented in recognition of Dr. Scheele's contributions to the betterment of the Nation's health during the eight years he served as Surgeon-General.

Heyden, Newport May Merge

Plans to combine Heyden Chemical Corporation and Newport Industries, Inc. under the name of Heyden-Newport Chemical Corporation are being discussed by the managements of the two companies, according to an announcement by Simon Askin, president of Heyden, and Armin A. Schlesinger, chairman of the board of Newport. A decision by the boards of directors is said to be near, and, if approved, it is hoped to submit the proposal to stockholders of both companies before January 1, according to a spokesman for Heyden.

A proposed ratio of exchange of common stock is one and a half shares of Heyden for one share of Newport. Mr. Askin and Mr. Schlesinger have stated that both managements are convinced that the proposed combination would have a substantial growth and earnings future.

DR. RICHARD BARRY

Woman to Receive SSC Medal

For the first time, a woman will receive the highest honor in cosmetic science. The Society of Cosmetic Chemists Medal will go this year to Miss Florence E. Wall, consulting chemist, author, and lecturer. The Medal Award, granted in recognition of outstanding contributions to the cosmetics field, will be presented to Miss Wall at the Society's December 13 meeting.

Miss Wall has devoted most of her professional career to cosmetics. Her experience as a chemist dates from World War I, when she left high school science teaching for the chemical industry.

Joining Inecto, Inc. in 1924, Miss Wall pioneered in the scientific development of hair dyes. As director of trade education and technical publicity for Inecto, she became interested in educating beauticians and consumers on

FLORENCE E. WALL

the use of cosmetic products. When her company acquired an affiliate promoting general cosmetics and beauty culture, she extended her educational activities to cover the entire field.

To improve her own knowledge of cosmetics, she studied at clinics and in classrooms. During World War II, she interrupted her extensive activities in the cosmetic field to serve as technical editor of General Aniline and Film Corp. laboratories at Easton, Pa., and later Ralph L. Evans Consulting Laboratories in New York. She has been an independent consultant and author since 1947.

Union Pharmaceutical V.P.

Dr. Richard Barry has been named vice-president and scientific director of Union Pharmaceutical Company, affiliate of Schering Corporation, it has been announced by Francis C. Brown, president of the parent company.

Dr. Barry administers a newly created product research, development and manufacturing department for Union.

GEORGE S. SQUIBB

George S. Squibb Appointed

George S. Squibb has been appointed director of distribution for E. R. Squibb & Sons, William L. Arscott, vice-president and director of sales, has announced. Mr. Squibb succeeds Harry J. Towers who has resigned in order to join the National Association of Retail Druggists as assistant executive secretary and manager.

Great-grandson of Dr. E. R. Squibb, the founder of the company, Mr. Squibb joined the firm in 1937 and has held executive posts in manufacturing, sales, branch operations and other departments.

New Location Is Chosen For DCAT Annual Meeting

The 67th annual meeting of the Drug, Chemical and Allied Trades Section of the New York Board of Trade, September 19 to 21, 1957, will be held in a new location, Galen Hall, Wernersville, Pa., according to the association's bulletin, "Digest of Current Trends and Activities."

J. David Hayden, chairman of the DCAT Section, stated, "Due to the increasing popularity of this annual meeting, we must again move to larger quarters in order to be able to accommodate everyone who wishes to attend."

The association formerly held their meeting at Pocono Manor and at Shawnee Inn. The new quarters will accommodate 500 guests.

Cincinnati Assn. Slate

Elected 1956-1957 president of the Cincinnati Drug and Chemical Association, Inc. at a recent meeting was Lawrence J. Meiners, who is associated with the George H. Nowland Co. Other officers elected include:

Louis W. Wahl, vice-president; Edward F. Heekin, secretary; and Wayne F. Ellis, treasurer.

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Merck Appoints W. W. Brown

William W. Brown has been appointed to the newly created position of director of operational services in the Merck Sharp & Dohme International Division of Merck & Co., Inc. He formerly served as manager of packaging and printing for the Merck Sharp & Dohme Division.

Joins Lueders 25 Year Club

The fifty-eighth person to join the Twenty-five Year Club of George Lueders & Co., Miss Clare Goldberg, secretary to the president of the company, Frederick J. Lueders, was the honored guest, October 11, at a dinner attended by members of the club. She received the gold pin of the club, a gold watch from the firm and gifts from fellow employees.

Babcock in New Post

Dr. Sidney H. Babcock Jr. has been named manager of manufacturing and process improvement of the Fine Chemicals Division, American Cyanamid Company, according to A. B. Clow, general manager of the division.

Prior to assuming his new post, Dr. Babcock was manager of overseas operations for the company's Lederle Laboratories Division.

Doran Joins Lever Bros.

Jack Doran, formerly marketing director of Helene Curtis Industries, has been appointed director of the promotion services division of Lever Brothers Company, it has been announced by Henry Schachte, advertising vice-president.

Henry D. Bloom Retires

Veteran representative of the Sheffield Company in New York, Henry D. Bloom, retired November 1 after twenty-five years of service with Sheffield.

HENRY D. BLOOM

G. D. Searle & Co. Laboratory in Buckinghamshire

Winthrop Med. Res. Asst. Dir.

Maurice C. Wynes, M.D., associated since 1952 with Armour Laboratories and from 1950 to 1952 with Abbott Laboratories, has been appointed an assistant director of medical research of Winthrop Laboratories, Dr. Justus B. Rice, vice-president and medical research director, has announced.

Dr. Wynes will be concerned with compiling and analyzing data relating to Winthrop drugs, especially new agents still under clinical observation.

B. A. Lustgarten Exec. V.P.

Bruce A. Lustgarten has been named executive vice-president of Lustgarten Laboratories, Inc., and Vitamix Corporation, Philadelphia, according to an announcement. He will be in charge of production and sales. His appointment follows his recent separation from the United States Air Force after two years' service.

Stepan Southeastern Rep

George Eudy of Charlotte, N. C. has joined Stepan Chemical Company as Southeastern sales representative. His address is 439 B. Wakefield Drive.

GEORGE H. EUDY

Searle Builds U.K. Plant

G. D. Searle & Co. has announced expansion of its facilities in Great Britain to provide for increased production of pharmaceuticals to serve overseas markets.

Although active in the British Isles since 1953, when it established a sales branch in London and contracted the manufacture of certain of its ethical drug products by British companies, Searle has not until now manufactured outside its home laboratories in Chicago.

The newly established laboratory is in High Wycombe, Buckinghamshire, 30 miles west of London. In addition to providing manufacturing facilities, it also becomes the British head office of G. D. Searle & Co., Ltd., wholly owned subsidiary of the Chicago firm, and all activities which have centered in London have been transferred to the new location.

In addition to meeting the needs of growing use of its drugs in the United Kingdom, the new Searle facility will contribute substantially to Searle distribution throughout the Sterling areas and also in other sections of the world, such as Turkey and parts of Africa influenced by the sterling areas.

The Searle British subsidiary is headed by G. Gordon Robertson, managing director. John G. Searle, president of the U. S. company is chairman of the board. Paul E. Tillman and Franklin P. O'Brien, senior vice-president and vice-president respectively of the U. S. company, are directors.

Norex Sales Manager

Don Hamilton has been appointed sales manager of Norex Laboratories, R. Blayne McCurry, president of Schenley Industries, Inc. and its proprietary affiliate, Norex, has announced.

As Customer Demand Grows, So Grows Ungerer

Growing demands on the laboratories and office space of Ungerer & Company at 161 Avenue of the Americas, New York, has forced the company to revamp entirely the space occupied. This work, the necessity for which was recognized in 1955, has been completed, giving the company facilities to carry out business activities with the greatest possible efficiency, and providing personnel with the best possible working conditions.

It was only in 1954 that growth of the business made the space then occupied inadequate. At that time the firm acquired ground floor space which nearly doubled the area, and handling of shipments and receipt of merchandise was improved.

Founded in 1893 by William P. Ungerer, Ungerer & Company was incorporated in 1901. In 1907, William G. Ungerer, son of the founder, succeeded his father as president. Associated with the company as vice-president was Frederick H. Ungerer, brother of William G. Ungerer. Frederick G. Ungerer succeeded to the presidency upon the death of William G. Ungerer early in 1930, and held that position until 1949 when he became chairman of the board of the company.

In 1932, Kenneth G. Voorhees joined the company, assuming the responsibilities of executive vice-president in 1936, and of president in 1949. This gave the company the fresh approach, and the energy of the young executive increased the adaptability of the company to the requirements of modern times, while the traditionally conservative policy gave it a sound financial background.

To meet growing demands of the market in 1935 Ungerer & Company acquired the firm, Budd Aromatics, thus securing the cooperation of two well-known and able men in the field of perfumery, Ivon H. Budd and William H. Dunney Jr., both vice-presidents of the firm. To meet the growing interest in flavors, in 1947 Ungerer purchased the J. N. Hickok organization, which has since been considerably developed.

The experience of the world wars and their aftermaths, making availability of

FREDERICK H. UNGERER

KENNETH G. VOORHEES

Upper left, the Ungerer factory in Totowa, N. J.; upper right, William H. Dunney Jr., vice-president and perfumer for the firm. Below are two scenes in the recently revamped New York headquarters: Left, the outer office, and right, the shipping department.

supplies dependent upon political complications, pinpointed the necessity of self-sufficiency. As a result, under Frederick H. Ungerer's presidency, plans were laid in 1945 for construction of a modern plant which was completed in 1946.

In 1954 the international operations of the company, as well as those of some of its customers, necessitated establishment of a European subsidiary and Ungerer-Vidal Charvet, with headquarters in Paris, France, was formed.

Doble Is Exec. Vice-Pres.

Kendall D. Doble Jr. has been elected executive vice-president of the Pneumatic Scale Corporation, Ltd., according to an announcement by the company.

Emery Research Librarian

Mrs. Bertha Chance has been appointed research librarian of Emery Industries, Inc., according to Dr. R. G. Kadesch, director of research. Mrs. Chance was formerly technical librarian for Food Machinery and Chemical Corporation's Westvaco Chlor-Alkali Division at South Charleston, W. Va.

"Pete" Niles in Special Post

M. J. "Pete" Niles, manager of the Chicago office of Fritzsche Brothers Inc., has been appointed to the newly created post of special representative for the president, in which capacity he will undertake key assignments directly related to sales, according to an announcement by John L. Cassullo, president of Fritzsche.

¶ With the firm for more than twenty-five years, first in the Columbus office, later as territorial head in New England, and for the past eight years manager of the Chicago branch, Mr. Niles is particularly well known throughout the Eastern and Mid-western states. His new offices will be at the company's New York headquarters.

M. J. NILES

Kenneth A. Hahn, a Ciba professional service representative in Chicago, who will participate in the 1956 Olympic games at Melbourne this month as a member of the United States Water Polo team.

New Pfizer Canadian Plant

A new manufacturing plant was opened October 25 in Arnprior, Ontario, by Chas. Pfizer & Co., Inc. Initially, the plant will package Terramycin and the new antibiotic combination, Sigmamycin, for the Canadian market, according to Pfizer President John E. McKeen.

Participating in the official ceremonies, the Honorable James McCanne, Canadian minister of revenue, scooped up a sample of Arnprior soil with a specially engraved silver trowel. The sample will be sent, along with other packets of earth from each of Canada's provinces, to Pfizer's Brooklyn laboratories.

In accepting the Canadian samples, Mr. McKeen said the action symbolized the cooperation and friendship of the two nations. If a useful drug is developed from these samples, he continued, it will be called "Canadamycin."

Robert Simpson, mayor of Arnprior, and Fraser Lockhart, general manager of Pfizer's Canadian operations, also participated in the opening program.

The new Pfizer plant, on an 80-acre site in the Arnprior industrial area on the Ottawa River, 40 miles from the Canadian capital, is one of Pfizer's seventeen plants outside the U. S. completed or now under construction.

Agent in Mexico for Evans

Dr. Alfonso Cornejo of Mexico City has been appointed agent in Mexico for Evans Research and Development Corp. In announcing the appointment, Ralph L. Evans Jr., vice-president for foreign operations, said that Central American industry is in a period of change, where more and more technological independence is being sought. Consulting organizations are playing an important role in helping industry to achieve this, he said.

Schering Audio Visual Supv.

Promoted to supervisor of Schering Corporation's newly created audio visual department is Miss Harriette Reimers, who in 1949 became the first woman to be hired by the firm as a professional sales representative, according to an announcement by Dr. John N. McDonnell, vice-president of the company.

Miss Reimers will be responsible for establishing the new department and coordinating all technical medical exhibits, motion pictures, slide films and other audio visual aids used in sales and advertising promotion. She will organize the department under the direction of Ralph Najarian, advertising manager of the company.

After receiving a B.S. in pharmacy from the University of Washington in 1934, Miss Reimers practiced retail pharmacy in Seattle for fifteen years before she joined Schering as a professional sales representative in Washington, D. C.

Joins Wm. S. Merrell

Dr. Alexander Chisholm has joined the Wm. S. Merrell Company as a section head of the Analytical Division, Dr. Harold W. Werner, vice-president in charge of research, has announced.

Sec.-Treas. of Walker

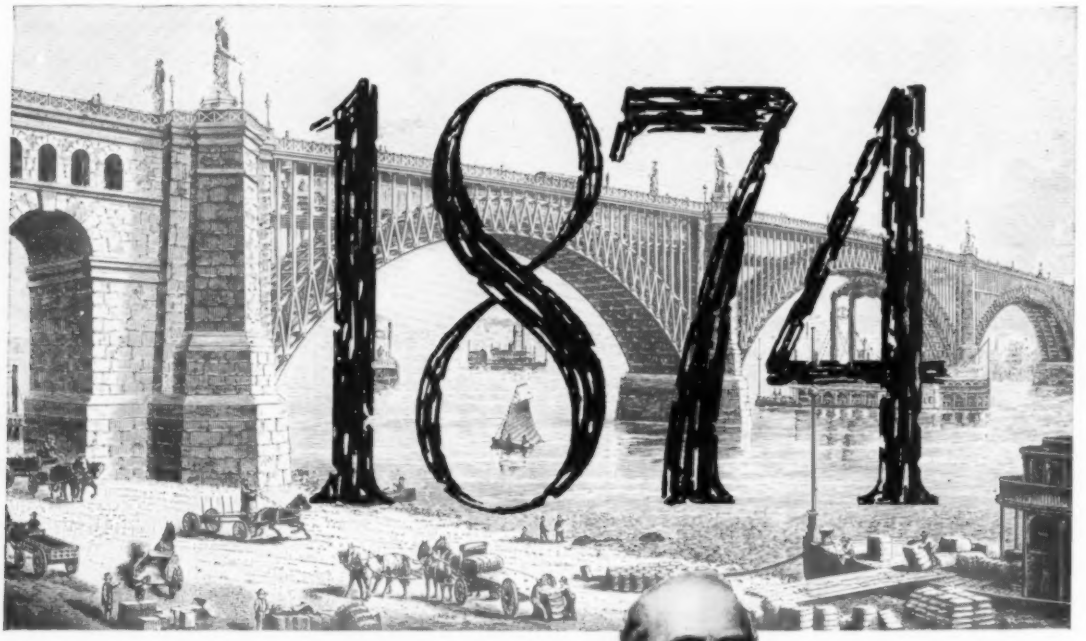
Elected secretary-treasurer of Walker Laboratories at the recent regular meeting of the company's board of directors was William J. Quinn who was formerly controller of the company.

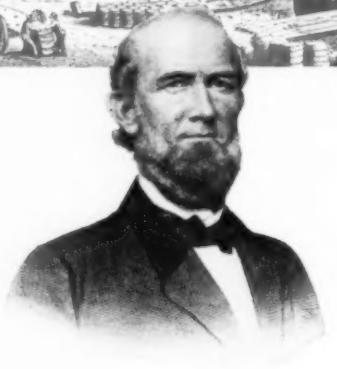
Elliott-Smith Joins Chatham

Paul Elliott-Smith, formerly manager of operations of the new products department of General Foods Corporation, has been elected vice-president and director of Chatham Pharmaceuticals, Inc., H. Noel Genung, president of Chatham, has announced.

PAUL ELLIOTT-SMITH

Important dates in the History of Industrial Progress





In engineering . . .

James B. Eads spanned the Mississippi River at St. Louis with the first steel-arch bridge. Named after its designer, the Eads Bridge is still regarded as an outstanding engineering achievement, is still a main artery of trans-river traffic.

.....In the history of fats and waxes

GROCO 6 — WHITE OLEINE (U.S.P. OLEIC ACID)

Titre	2° – 6°C.
Cloud Point	35° – 43°F.
Color 5¼" Lovibond Red	1 max.
Color 5¼" Lovibond Yellow	10 max.
Color Gardner 1933	2 max.
Unsaponifiable	1.0% max.
Saponification Value	199 – 204
Acid Value	198 – 203
% F.F.A. as Oleic Acid	99.5 min.
Iodine Value (WIJS)	95 max.
Refractive Index 50°C. (Average)	1.4500

Abbe announced a refractometer with heated prisms. Today, the refractive indices and spectrophotometric examinations available to the laboratory technician permit the closest possible check on fatty acid composition and uniformity. These and other quality control procedures are in everyday use in the laboratories of A. Gross & Company. They help to insure the consistent superiority of such products as GROCO 6 – WHITE OLEINE. Properties of this multiple distilled Oleic Acid are shown in the table.

Send for samples and catalog "Fatty Acids in Modern Industry".

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J. T. Baker Chemical Company's new research laboratories

Baker Labs Dedicated

The J. T. Baker Chemical Company's new research laboratory building, dedicated October 26, will reinforce the firm's position in the field of purity reagents and chemicals and permit the expansion of its current industrial chemical development, according to an announcement by the company.

New Jersey Governor Robert B. Meyner formally opened the laboratory, and Professor Arthur C. Cope, Chairman of the Department of Chemistry, Massachusetts Institute of Technology, gave the dedicatory address.

In addition to scientific guests from other areas, members of the Lehigh Valley Section of the ACS attended. The following day there was open house for employees of the company and their families, and local business people.

The 60 x 150 foot building has more than 20,000 square feet of floor space available for laboratories, services, research library, and for the offices of the Research Division and Chemist-Analyst. Facilities are provided for a research staff of sixty.

There are fifteen separate laboratories, each approximately 450 feet square. Several individual laboratories are equipped for organic exploratory work, and are provided with distillation assemblies for purification of organic intermediates. Another laboratory has extensive special equipment designed for polymerization studies. The antibiotic laboratories include special equipment for purification and isolation studies.

Five of the laboratories are especially fitted for various inorganic research projects. A special equipment laboratory provides space for assemblies that are too large or heavy for the usual laboratory. The instrumental laboratories are well equipped for physico-chemical studies, and with associated laboratories can carry out analyses of non-routine nature including both micro-organic and inorganic determinations.

J. T. Baker's research program is headed up by Dr. George E. Ham, director of research. Dr. E. C. Larsen is vice-president and technical director.

Joins Wyeth Medical Staff

Dr. Robert Steele Warner has been appointed to the medical staff of Wyeth Laboratories, Dr. George E. Farrar Jr., medical director, has announced. Dr. Warner formerly was assistant medical director in charge of professional education for the American Heart Association.

Ortho Eastern Regional Mgr.

Frederick F. B. Hare has been promoted to eastern regional manager of Ortho Pharmaceutical Corporation.

Cole Is P&G Vice-Pres.

H. Schuyler Cole has been elected vice-president in charge of The Procter & Gamble Company's Toilet Goods Division. He was formerly manager of the division.

H. SCHUYLER COLE

Fragrance Found. Exec. Dir.

Miss Sherry D. Stone, assistant executive director of The Fragrance Foundation for the past four years, has been appointed executive director, according to an announcement by Jean Despres, president of the Foundation and executive vice-president of Coty, Inc.

Prior to joining the Foundation, Miss Stone was women's news director and assistant public relations director of WAAT-WATV, Newark. In private life she is the wife of Norman Krompier, president of Custom Sales Co., West Orange, N. J. and the mother of a year-old son, Jeffrey Alan.

Dr. E. H. Hamann to Retire

Dr. Edmund H. Hamann, chief flavor chemist of Fritzsche Brothers, Inc., will retire from active service January 1, 1957. He will be retained as a consultant.

In announcing Dr. Hamann's retirement, Fritzsche officials pointed to his long tenure of service with the company and to his many accomplishments in the science of flavoring.

Western Reps for Dreyer

P. R. Dreyer Inc. has appointed W. M. Gillies Co., Los Angeles, as Western States representatives of Dreyer products and services.

Leonard S. Brooks, managing director of Dreyer, said this organizational expansion completes a coast-to-coast sales setup which is geared to provide Dreyer's growing number of customers with increasingly better service. Headquarters of W. M. Gillies Co. are at 6399 Wilshire Boulevard.

Grove Labs Research Dir.

D. M. Green, M.D., has been appointed director of research for Grove Laboratories, Inc., according to James H. Grove, president. Dr. Green was formerly research director of Nepera Chemical Co.

DR. D. M. GREEN

BETTER DISTRIBUTION METHODS . . . . . .

14 SEPARATE REQUISITIONS for assorted chemicals come in to New York office of national manufacturer. Purchasing agent has *single* order made out and calls nearby Merchants office.

ENTIRE ORDER IS PUT ON TELETYPE to Merchants offices and warehouses across the country. Each of Merchants' other offices is similarly equipped to function as central ordering point.

DELIVERIES GO OUT IMMEDIATELY to all 14 plants. Each plant has its order filled from nearby Merchants warehouse; short haul delivery saves time and shipping costs.

SINGLE INVOICE FROM MERCHANTS covers all 14 shipments. By calling Merchants, this purchasing agent supplies the chemical needs of all his plants quickly and economically from a single, reliable source!

NATIONAL MANUFACTURER MAKES ONE CALL TO MERCHANTS, GETS LOCAL DELIVERY TO 14 PLANTS ACROSS THE COUNTRY!

Each Merchants office is geared to supply fast, efficient delivery of industrial chemicals from warehouses throughout the country. Each Merchants office provides all the advantages of nationwide service with all the economy of local delivery. A single call to Merchants saves you time, reduces your shipping costs, and simplifies to a considerable extent your order and invoice paperwork. Products include acids, alkalis, fungicides, surfactants, chlorinated solvents, emulsifiers, laundry compounds, soaps, dry ice and chemical specialties.

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STOCK POINTS: Albuquerque, N. M. • Erwin, Tenn. • S. Norwalk, Conn. • Columbus, Ohio

Upjohn Australian Firm

A new, wholly owned subsidiary has been established in Australia by The Upjohn Company. Formation of the new unit was announced by Robert S. Jordan, director of international operations, and Richard D. Tedrow, head of the international operations' legal department, on their return from Australia.

The firm, The Upjohn Company (Aust.) Pty. Limited, is now occupying temporary quarters in Sydney, Mr. Jordan stated. An eleven-acre building site has been purchased in Parramatta, a suburb of Sydney, and plans are being drawn for the construction of an Upjohn plant there to house office, manufacturing and warehousing facilities. It is expected that the plant will be ready for occupancy on January 1, 1958.

The new firm is the fifth Upjohn international subsidiary. Others now operate in Canada, Mexico, Brazil, and Great Britain.

Board of directors of the new firm include Mr. Jordan, chairman; R. M. Boudeman, assistant secretary and treasurer; Gordon J. Findlayson; D. B. Willmott; Dr. E. Gifford Upjohn; C. V. Patterson; D. Gordon Knapp; L. D. Harrop; E. H. Coleman; Mr. Tedrow.

Joins Schering Adv. Div.

William L. Pott has been appointed assistant international manager of the advertising division of Schering Corporation, Dr. John N. McDonnell, vice-president of the company, has announced.

H. Boris Burns Is Chairman

H. Boris Burns, president of U. S. Vitamin Corporation, has been elected chairman of the board to succeed the late Hamilton Pell. Mr. Burns was also elected chairman of the executive committee.

H. BORIS BURNS

Arriving in Toronto via the company plane for the grand opening of the new Shulton plant are George L. Schultz, left, president of Shulton, Inc., and Frank N. Carpenter, Jr., vice-president.

New Midwest Distribution Center Is Opened by Pfizer

Chas. Pfizer & Co., Inc., officially opened its new Midwestern Distribution Center October 24 on Chicago's west side at 6460 West Cortland Street to serve customers in a fifteen-state area.

President and Chairman of the Board John E. McKeen and other Pfizer executives were hosts at an open house and buffet attended by about 1,000 civic and business leaders and members of hospital, pharmaceutical, chemical and agricultural groups in the Chicago area. Alderman Alfred J. Cilella joined Mr. McKeen in cutting the ceremonial ribbon.

Pfizer first assigned a salesman to the Chicago area seventy-five years ago and has outgrown warehouse and office facilities at four locations in the city. For the past few years the branch has been located in the Mandel-Lear Building on Michigan Avenue.

The new two-story brick and concrete structure of modern design contains 79,000 square feet of warehouse space, part of it air-conditioned for the storage of heat-sensitive chemicals and drugs. Specially designed materials handling equipment has been installed to permit quick packing and shipment.

Offices and a lunch room, all on the second floor, cover an area of 20,000 square feet and are also air-conditioned. The center has three freight loading docks and is served by the Milwaukee Road. For truck transportation, the branch has five loading docks.

All four of the company's domestic marketing divisions — Pfizer Laboratories, J. B. Roerig & Co., Chemical Sales and Agricultural Sales—will have their regional headquarters in the new center.

Shulton Canadian Plant Opens

The new Shulton, Inc. toiletries plant, occupying 32,000 square feet on four acres in Don Mills, Toronto, was officially opened September 18, with store buyers, members of the press and leading Toronto dignitaries attending the ceremonies. George L. Schultz, president of Shulton, Frank N. Carpenter, Jr., vice-president, and George M. Thomson, manager of Shulton's Canadian operations, were hosts for the opening.

The new plant, built to meet increasing demands for Shulton products, will serve as headquarters for all Shulton sales and manufacturing in the Dominion.

"Trilogy of the Desert," a series of three original oil paintings by Salvador Dali, were displayed at the opening. Shulton commissioned Mr. Dali to interpret on canvas the fragrance of Desert Flower perfume when it was introduced several years ago. "Trilogy of the Desert" has toured major cities in the United States and Canada and is currently on display at the Toronto Art Gallery.

Emery South Central Rep

Appointment of Joseph Z. Sack to the South Central sales territory of the Fatty Acid Sales Department of Emery Industries, Inc. has been announced by G. W. Boyd, department manager.

This territory includes the states of Missouri, Kansas, Colorado, Nebraska, Oklahoma, Arkansas, Texas, western Louisiana, southern Illinois, and western Tennessee.

Ciba Asst. Sales Prom. Mgr.

John W. Prudden has been appointed to the newly created position of assistant sales promotion manager in the Sales Division at Ciba Pharmaceutical Products Inc., according to Vincent A. Burgher, sales vice-president.

JOHN W. PRUDDEN

Let's look at your cosmetic aerosol fragrance problem from every angle!

In custom-creating a fragrance for your cosmetic aerosol, Givaudan examines your problem from *every* angle—perfume efficacy and consumer acceptability... types of propellents... pressure... solubility... compatibility... container material... cost and other factors.

Our staff is equipped with the skill, knowledge and specialized facilities to study such problems scientifically. Thus we can supply you with a fragrance that is not only technically correct from every viewpoint but uniquely and specifically *yours*. May we work for you—with you—to give your cosmetic aerosols exactly the right fragrance appeal?

GIVAUDAN

GIVAUDAN-DELAWANNA, INC.
330 West 42nd Street, New York 36, N. Y.

A.Ph.A. Hears Ciba's Cooper

The progress of mechaniza..on in drug tablet coating was detailed by Dr. Jack Cooper, director of pharmaceutical development, Ciba Pharmaceutical Products, Inc. at the annual Pharmacy Week meeting of the Philadelphia Branch, American Pharmaceutical Association, held at the Temple University School of Pharmacy, Philadelphia.

Only in recent years have sufficient mechanical improvements been effected to make practical large scale manufacturing of compression coated tablets, Dr. Cooper reported. "Compared to pan-coated tablets, the compression-coated types generally are more stable to light, heat and moisture," he added. "An additional advantage is physical uniformity, elimination of the use of water during coating, simplicity of embossing tablets for identification and the possibility of combining two incompatible drugs into one tablet."

Charles C. Rabe, secretary of the A.Ph.A.'s public relations committee, spoke on Pharmacy Week during the dinner meeting which preceded Dr. Cooper's talk.

William T. Fink, of Wyeth Laboratories, president of the Philadelphia branch, presided over the meeting, the first in the local organization's golden anniversary year. Dr. William L. Madison, of McNeil Laboratories, Inc., was program chairman.

Brennan Appointed by Abbott

John J. Brennan has been named assistant sales manager of the Chemical Sales Division of Abbott Laboratories.

Joins Ciba Med. Service Div.

Dr. Michael Barry has joined the medical service division at Ciba Pharmaceutical Products Inc. as a staff member, Vincent A. Burgher, sales vice-president, has announced.

R. C. PITTENGER

Named by Lilly

Robert C. Pittenger, Ph.D., has been named manager of antibiotic development at Eli Lilly and Company.

In this newly created position, Dr. Pittenger is responsible for all phases of antibiotic development work, including the fermentation pilot plant, fermentation development and assay, and purification development.

Joining Lilly immediately, Dr. Pittenger spent six and one-half years as a microbiologist in the microbiological department.

New Warner-Lambert Post

Frederick C. Hitchcock has been appointed to the newly created post of director of new products for Warner-Lambert Pharmaceutical Company. He will be responsible for the commercial development and marketing of new products designed for mass distribution.

Bristol's Assoc. Med. Dir.

Kenneth A. Hubel, M.D., has been named associate medical director of Bristol Laboratories Inc. He has been assigned to the laboratories in Syracuse, according to the announcement by C. H. Mann, M.D., vice-president and medical director of Bristol.

EDWARD A. BUSH

Bush to Visit W. Germany

Edward A. Bush, sales manager, Dragoco New York, is leaving December 1 for a business trip to Western Germany, according to Dr. H. G. Gribou, vice-president.

Mr. Bush will spend considerable time at Dragoco's main office and plant in Holzminden, where he will become acquainted with the newly developed technical facilities and products.

Ac'cent Internat. Appoints

Douglas J. King has been appointed manager of fine chemical sales for Ac'cent International, according to George B. Hamilton, vice-president, International Minerals & Chemical Corporation, and head of the Ac'cent Division.

Merrell's Asst. Purch. Agent

Russell E. Schuster has been appointed assistant purchasing agent of The Wm. S. Merrell Company, S. E. Spencer, purchasing agent, has announced.

Ames Assistant Treas.

Earl F. Mayer, head of the accounting department of Ames Company, Inc. since 1954, has been appointed assistant treasurer, according to an announcement by the Ames board of directors.

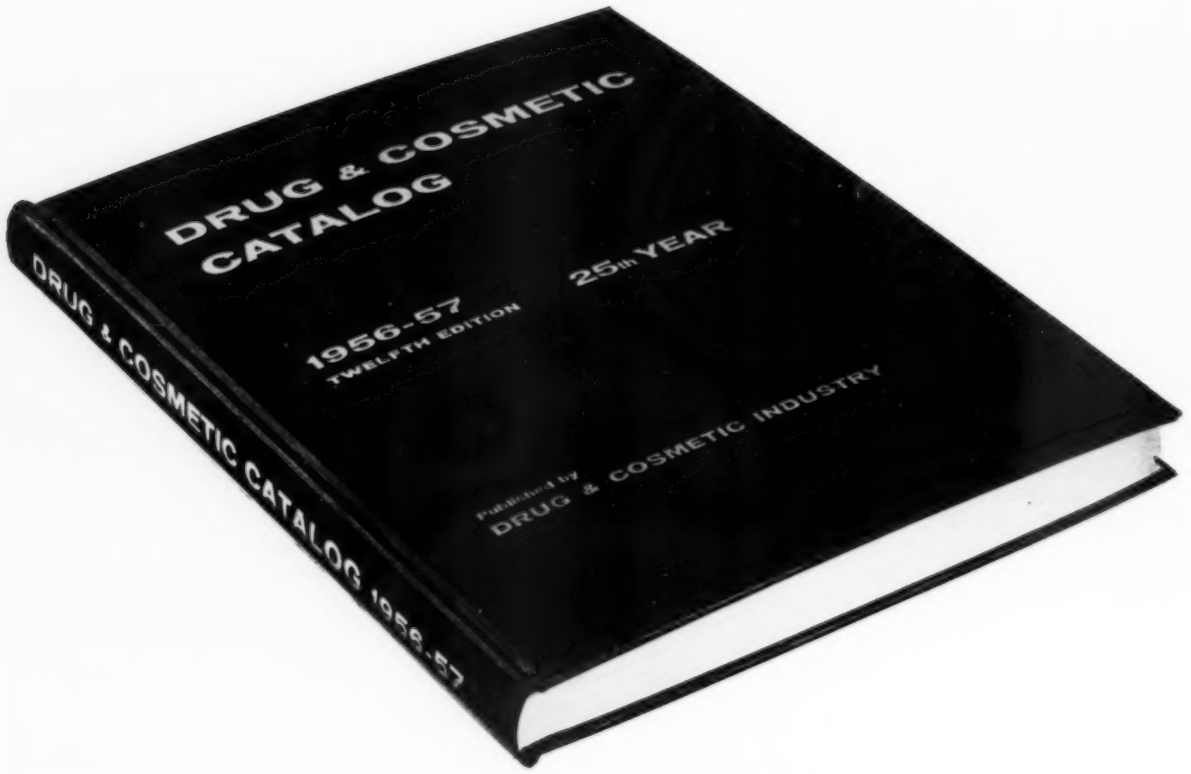
Harry N. Falk

Harry N. Falk, seventy, vice-president of Baxter Laboratories, Inc., died October 9 in Los Angeles after a short illness.

Mr. Falk and his brother, Dr. Ralph Falk, currently chairman of the company, founded Baxter Laboratories in Chicago in 1931, with Mr. Falk as resident manager.

Born in Boise, Idaho, Mr. Falk is survived by his wife, Elizabeth, and three children, Stephen, Mrs. Paul Pearce and Mrs. Jerry L. May.

Shulton, Inc. was host to members attending the annual convention of the Society of Cosmetic Chemists. The group was brought from New York to the Shulton plant in Clifton, N. J., and conducted on a tour. The noted cosmetic chemist, Dr. Emil Klarmann (front row, fifth from left) is shown seated next to Dr. O. Morton (sixth from left) perfumer for Shulton.



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Management Forum

by Francis Chilson
INDUSTRIAL CONSULTANT

Political Palaver

By the time you read this the shouting and the tumult of the presidential campaign will have ended. Thank God! Big Business was as usual the whipping boy. The unions and the Democrats promulgated the idea that the unions have been responsible for the American standard of living, meaning the high wages and high salaries people of all ranks enjoy.

Through all the storm and strife I wondered at the ineptitude of Big Business, meaning all business really, in educating the American public as to the real source of our high wages and high living standard.

The unions had little or nothing to do with either as anyone with a modicum of historical knowledge can testify. Ford started the ball rolling with his five dollar minimum wage plan forty odd years ago and the ball has been rolling and getting larger with successive increments ever since. And those increments have come from business and not from the unions. But business has allowed the unions to claim all the credit for it.

We have television, radio and all manner of wonderful gadgets, to the development of which the government contributed not a nickel. Tens of millions of dollars were invested in television alone by business before it became a commercial reality. The average man never realizes the immense financial risks that lie behind the comforts he enjoys. And business has done nothing to enlighten him. I know of one pharmaceutical product in which two and a quarter million dollars were expended on research before the product became a commercial reality.

And who are these big business men? Many, if not most of them, came out of middle class families and not, as so many working men believe, out of the palaces of the rich. But the story is not being told, hence, during an election campaign business men are castigated as some sort of bandits, and unions are allowed to pose as the champions of the working man.

And what right has the hourly worker to the name, "working man?" The working men I know are not the eight to four boys who use only their muscles—and damned few of them at that—but the executives, scientists, engineers and salesmen, whose work days have no legal limit and whose work and worries go home with them at night.

The U. S. Economic System

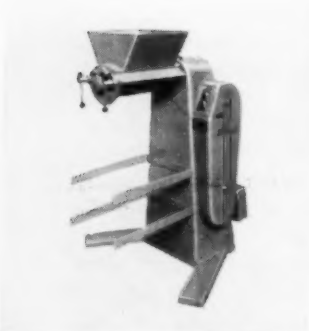
A year ago after I returned from a swing around the world I emphasized the need for a new word to describe our economic system and I suggested the word "distributism" as a fitting word to describe a system which distributes the most of everything to the most people. "Capitalism" rightly or wrongly means, greed, selfishness, usury and corruption to most of the world especially in the Far East. In this my views are supported by Msgr George G. Higgins of the National Catholic Welfare Conference, who was quoted in a recent issue of Time as follows:

"American management would be well advised, if only for the sake of America's reputation abroad, to distinguish more clearly in its propaganda between 'capitalism' on the one hand and the present-day American economic system on the other. 'Capitalism' has a bad reputation in Europe and Asia, deservedly so in many cases. Consequently, to advertise and to glorify our own economic system as 'capitalism,' without at the same time making a lot of distinctions and sub-distinctions, is, again, to play into the hands of the enemy. The American system has a number of weaknesses and imperfections, but surely it is much better in every respect than 'capitalism' in the sense in which that word is understood or misunderstood in many parts of the world. It ought to be possible to make this point clear in our propaganda.

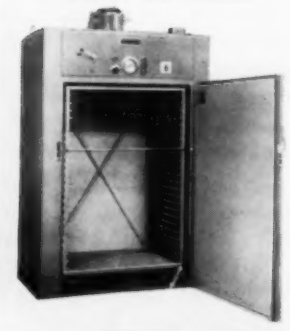
But in a recent pamphlet distributed by the United States Information Service in France, under the title 'The American Economy, Beyond Capitalism,' the

(Continued on page 679)

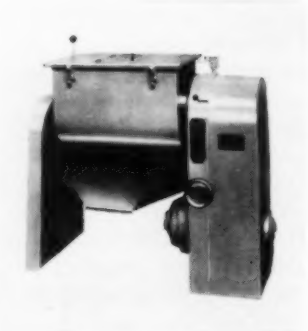
Stokes Auxiliary Equipment for Pharmaceutical Manufacturers



Granulators employ the efficient oscillating principle for breaking up moistened or dried aggregates. In a range of capacities.



Drying Cabinets use recirculating air; steam or electric heating under automatic control. Models with 5, 16 and 24 trays.



Granulating Mixers, for blending wet or dry materials, feature dust-tight lid, safety shut-off, controlled tilt for unloading.

Coating Pans. Model 1-D stand uses 16″ to 60″ stainless or copper pans, or polishing pans with removable canvas drums.

statement is made that the American system 'is no longer capitalism.' Shortly after, the U.S.I.S. hastened to explain to the press that what the pamphlet really meant to say was not that capitalism is dead in the United States, but merely that the United States has evolved a new and dynamic form of capitalism to replace the type we knew in the 19th century.

We are willing to settle for that if it is the best, or the most, that can be said by a government agency in the political climate of 1955. But let's say it loud enough for the rest of the world to hear."

The Danger of Biological Degeneration

With his usual penetrative foresight Aldous Huxley had this to say on the ultimate effect of medical progress in preserving the unfit:

"It is the same with progress in the field of medicine. Thanks to vitamins, antibiotics and modern hygiene, people now live longer, on the average, than they did. This is a genuine progress. But again it is progress at a price. Because we live longer, the degenerative diseases have become a much more serious problem than they used to be. Because the death rate has been reduced, human numbers are increasing with a speed which makes nonsense of all social and economic planning for the future, and on a scale which threatens to cancel out all the beneficent results of technological progress. And because individuals carrying small deleterious mutations in their germ plasm are being kept alive long enough to permit them to pass on their defects to their children, the genetic pool from which the future generations of humanity must draw is being contaminated. Environmentally, thanks to scientific progress, our descendants will 'never have had it so good.' Biologically, thanks to one of the costly by-products of that progress, they will 'never have had it so bad.' "

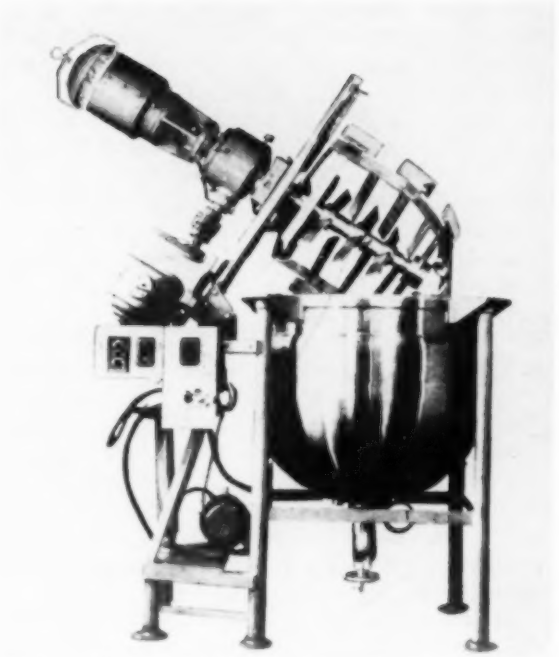
Fast Thorough Blend

Thorough blending of fluid and semi-fluid substances at rates ten times as fast as those of conventional equipment is provided by the double mixing action of an Eppenbach Agi-Mixer, according to its manufacturer, Gifford-Wood Co.

The Agi-Mixer consists of a set of double-motion or counter rotating paddles or blades working in combination with an Eppenbach Homo-Mixer—a high-speed homogenizer. The paddles work material down into the homogenizing zone, where the Homo-Mixer subjects it to a refinement by hydraulic shear. The cycle from Home-Mixer to paddle mixer is repeated until the mixture is absolutely uniform.

The complete mixing assembly is installed in a kettle which may be of single shell or of jacketed construction and which may be operated atmospherically, under pressure, or under vacuum.

The Agi-Mixer can be used for blending, homogenizing or emulsifying pastes, creams, batters, slurries, gums, adhesives, pigmented coatings, resinous compounds and similar heavy, viscous mixtures. Such products can be blended and homogenized at the same time, G-W reports. The Agi-Mixer can be used in such chemical processing industries as pharmaceuticals, heavy chemicals, paints, plastics, dyes, inks, drugs, and cosmetics.



Eppenbach Agi-Mixer with mixing XX elements tilted out of kettle.

Additional features of the Agi-Mixer include 1) elimination of vortex and minimization of excessive air introduced into the blend; 2) scraper blades on outer paddles to insure better heat transfer from jacket of kettle to material being processed; and 3) paddle mixer and Homo-Mixer may be operated simultaneously or independent of each other.

Production models of the Agi-Mixer can homogenize, blend, or emulsify up to 1,000 gallons of material in a single operation.

Gifford-Wood recently acquired license and patent rights to the complete line of Eppenbach blending, homogenizing, emulsifying and similar processing equipment. Manufacture of all types of Eppenbach equipment is now under way at G-W's main plant in Hudson.

The homogenizing element of the Agi-Mixer is powered by a motor which is coupled to a shaft terminating in a turbine, or rotor. This rotates in an enclosed housing, or stator, to form the homogenizing head. As the rotor revolves at high speeds of 3,500 to 8,000 rpm., a pressure differential is established and maintained between the bottom of the turbine and the surface of the material being processed.

Unrefined material is continuously drawn from the bottom of the mixing container and forced to pass through restricted openings in the homogenizing head.

This shears the material and breaks it down in size. Since the turbine also acts as a pump, material is discharged upward after it passes through the homogenizing zone.

The material then strikes an adjustable deflector plate, which sends it to side of the vessel. Here the paddle mixer, powered by a separate motor, works the material down from the side of the kettle back into the homogenizing zone.

Agi-Mixers are available in laboratory and production models ranging in capacity from three to 1,000 gallons. Kettles supplied with Agi-Mixers may be seamless drawn from one piece of sheet material, with no seams to crack, corrode, leak or contaminate material. Kettles can be fabricated in stainless steel, Monel, nickel, or other materials of construction.

Auxiliary equipment furnished with the Agi-Mixer include: stainless steel flush type valves, quick opening gate valves, or diaphragm valves; steam coils inside jackets; carbon or stainless steel legs; hydraulic lifting arrangements for tilting complete mixing assembly out of kettle.

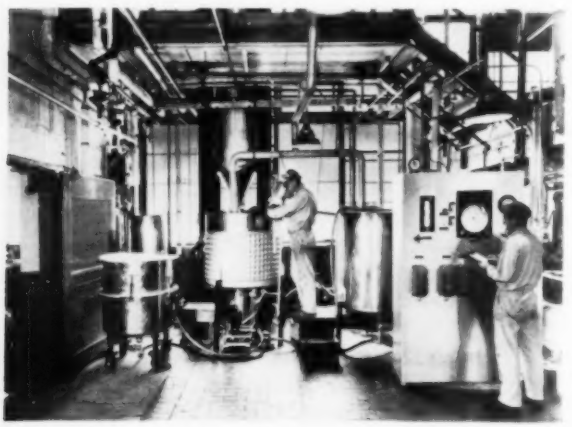
Kettles may be furnished with thermo wells having dial thermometers, or continuously recording thermometers, as well as steam trap and strainer assemblies. A wide range of automatic controls can also be supplied to fit individual requirements.

Turba-Film Evaporator at Schering

A substantial boost in productive efficiency and space savings, as well as easier maintenance and a higher margin of safety are some of the advantages of the Rodney Hunt Turba-Film Evaporator, according to Herbert Kaplan, process engineer for the Schering Corporation.

Schering uses a Turba-Film evaporator to remove chloroform from various pharmaceutical extracts. The evaporator, which incorporates an entirely new concept of evaporation—a turbulent falling film, has also been employed in changing Meticorten solution to a suspended state. It does this by rapidly concentrating the solution to a point where the material precipitates out. Due to the Turba-Film design, moisture is effectively eliminated even though the sensitive product is subjected to minimum heat for only the briefest time.

Turba-Film Processor No. 4 at Schering Corporation. The evaporating section and the rotor drive of this 1200 pounds of water per hour capacity unit are located on the floor above. Control panel for the installation is at right. Workman is examining discharge of Meticorten into the concentrate cooler.



The Meticorten solution is recycled through the evaporator once. On the first pass the ratio of concentration is about 35 to 1. On the second pass, the ratio is 15 to 1, a total feed-to-product reduction of over 500 to 1. Temperature of the unit, heated by steam under vacuum, is held just under 100° C. Oxidation of the concentrate is prevented by the slight vacuum condition which prevails.

"Previously we used the ordinary batch process of evaporation," reports Mr. Kaplan. "With the Turba-Film evaporator, production has become a semi-continuous operation with a consequent reduction in cycle time that results in substantial improvements in yield per unit of time." "In addition," notes Schering's process engineer, "the Turba-Film unit requires only one-tenth the space formerly occupied by batch evaporation equipment."

This space-saving characteristic of the compact, stainless steel evaporator is due to its streamlined vertical construction which also permits easy cleaning and maintenance, slashing downtime to the vanishing point. Actually, because of the high turbulence of the unit's action deposits do not form on the evaporating wall. Occasionally a cleaning solution is run through the unit and on rare occasions, when total cleaning is necessary, the rotor and separating cage are removed readily by means of a chain hoist.

Safety, both to product and personnel, is another feature of the Turba-Film evaporator, according to Kaplan. Because of the small amount of material in process at any particular moment, the hazards of handling a highly volatile product are minimized. This allows Schering to turn out a better quality chemical while (since many operations including the evaporation of chloroform present certain risks to employees) assuring a maximum of personnel safety.

"Because the Turba-Film unit is so sensitive as an evaporator," Mr. Kaplan declares, "we are able to use it to remove chloroform from weaker solutions than were previously thought possible. Naturally this enables us to turn out a product of consistently higher quality."

In the patented Turba-Film evaporator, a high-speed rotor picks up the liquid as it enters the evaporating section. Each rotor blade carries a small wave of material ahead of it which, as it spins outward and downward in a gravity flow, forms a thin film held centrifugally to the wall of the evaporator. Vapors rise into the separating section where separator fins arrest any entrained droplets and return them to the heating zone below.

The high speed of the blades creates a turbulence which cuts down the effects of interfacial friction and provides uniform heating of the solution. This avoids

localized overheating which, in conventional units, can lead to oxidation or impairment both of product and equipment.

The construction of the Turba-Film evaporator allows only a small amount of liquid to be in process at any one moment. In addition to the safety factors mentioned above, this permits an extremely rapid and efficient production cycle. The complete pass is made in a few seconds.

The thin film, the small quantity in process, and the separation of entrained droplets, combine to eliminate foaming and frothing. There is no hydrostatic head to elevate the boiling, another safety factor that assures a constant temperature of the product.

The thinness of the film remains constant regardless of liquid viscosity or the speed of its descent along the heating surface.

RodneyHunt Turba-Film evaporators are also employed to provide continuous evaporation of solvents from latices, resins, organic chemicals, gelatins, glues, coffees, detergents and numerous other items. In nearly every case, they offer the same features of minimum cost production, safety, space-savings, and improved end results.

New Colton Granulator

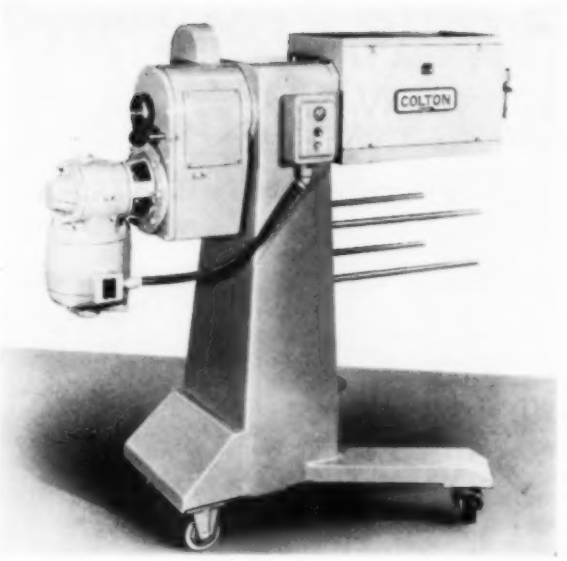
A new Model 542 granulator having a high speed mechanical drive that provides both rotary and oscillating motions is now available from Arthur Colton Company, 3400 East Lafayette, Detroit 7. The machine provides maximum versatility and minimum floor space requirements since the user can select either rotary or oscillating granulation methods in a single machine to suit the requirements of the material.

The machine drive includes a ¾-hp motor and a totally-enclosed geared transmission that is shifted with a lever to change from one type of granulating motion to the other. When the rotary motion is used, the rotor turns at a constant speed of 86 revolutions per minute. This method is particularly adapted to the high speed granulation of dry materials.

For processing semi-wet granulations and materials that tend to compact in the granulation process, the oscillating motion can be used. With the drive shifted to this position, the rotor revolves ¾-turns in one direction, reverses and revolves ¾-turns in the opposite direction. Eighty-six reversals or oscillations of this type are made per minute.

The combination rotary-oscillating transmission drive can be installed without alterations to Standard Colton Model 540 Rotary Granulators.

The new Colton Model 542 Granulator has a single rotor having six hexagonal rotor bars that are mounted in slots for easy removal and can be turned to different positions. The rotor is removable for cleaning through an opening in front of the hopper. The hopper has removable side panels to permit quick cleaning and changing of the stainless steel screen. Efficient screen tighteners are provided.



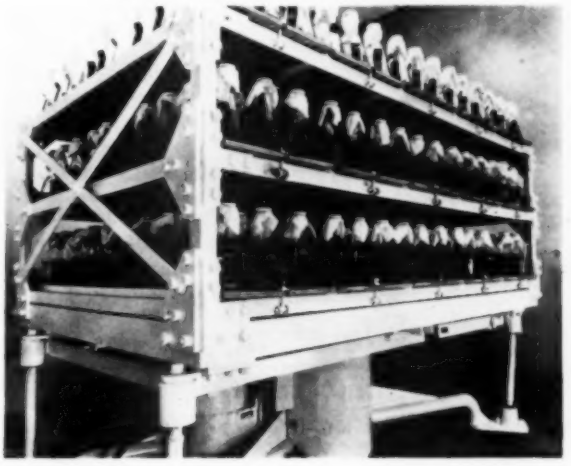
The granulator has a welded steel frame and occupies a floor space of 36-in. by 46-in. and is 53-in. high with casters. The hopper discharge is 39-in. from the floor on the castered model. The hopper is 11¾ in. wide and 20½ in. long. The screen measures 16-in. by 20-in.

Sifters to Agitate Cultures

In the Research Division of its Syracuse plant, Bristol Laboratories use Richmond Spout-Waldron Gyro-Whip DC model sifters to provide agitation for antibiotic-producing material in 500 cc. Erlemeyer flasks. Inside the flasks are from 75 to 150 cc. of water mixtures of protein, carbohydrates, and sugar, serving as food for cultures of penicillin, streptomycin, tetracycline, and other antibiotic-producing organisms. The cultures multiply and develop by feeding on the media in the water mixture.

The prepared flasks are protected from airborne bacteria by cotton and gauze closures, and placed on horizontal boards (which replace the usual sifting

Richmond Spout—Waldron Gyro—Whip DC



Coding Problem?

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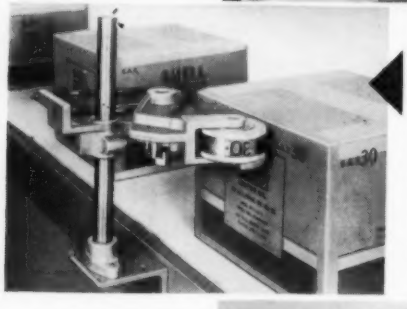
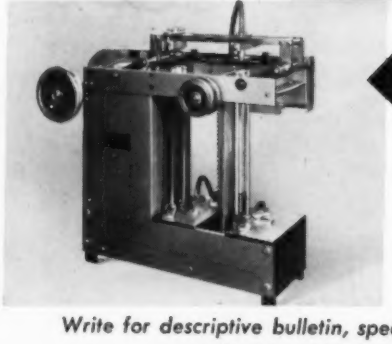
Top-Coder . . . imprints code-dates, other changeable legends on top surface of round or rectangular cans, canisters, jar covers, cartons, boxes. Attaches to conveyor or packaging machine. Locates imprints accurately even if container flow is irregular or intermittent.



Side-Coder . . . imprints side surfaces of folding cartons, set-up boxes, rectangular cans and canisters. Can be used to imprint codes, product identification, etc. simultaneously. Fully automatic, adapts to any mechanized production-line.

Bottom-Coder . . . portable, space-saving unit that imprints codes on bottom of jars, bottles, cans, etc. Imprint surface may be flat or concave, flush or recessed. Wheels right up to the line, can be moved about at will.



Label-Coder . . . foolproof, automatic bench unit that imprints codes on labels in bulk. Imprints up to 5 different legends on labels in a single run. Handles full hour's capacity of labels without attention . . . delivers them in perfect stack.

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screens) where they are held in position by spring clips. Each of 15 boards will accommodate 30 flasks. Bristol designed the superstructure to hold three tiers of boards. Under controlled room temperature the flasks are agitated over periods of hours or sometimes several days, depending upon the demands of the experiment as designed by the microbiological research teams.

Utilization of this type of rotating equipment permits simulation of fermentation or growth conditions later met in stainless steel, agitator equipped tanks in capacity from a few gallons to 30,000 used in the manufacturing division. Naturally, by using hundreds of easily manipulated small volumes of material, a closer and more economical study can be carried out on known antibiotics and those whose characteristics of growth as living organisms are not completely understood.

Redesign Perl Machines

Perl Machine Mfg. Co., Brooklyn, N. Y., bottle filling, tube filling and closing machinery, has redesigned and streamlined of its entire line of straight line bottle and can fillers. By redesigning the entire line, Perl Machine has improved the performance and increased the output of each unit. To simplify maintenance and improve safety, the lower part of each machine has been enclosed in an attractive wrinkle finish cabinet that protects the motor and vacuum pump, yet makes access to them very simple. In addition, all controls have been placed in the front of each machine for easier accessibility.

The model shown on the photo is Model COS-K, a straight line filler which fills at speeds of from 20 to 100 containers a minute, depending on the size of course. This particular unit operates by vacuum, and is semi-automatic with electro-pneumatic controls, operated by a simple push button that permits even the most unskilled operator to attain full production immediately. This machine is also available in a fully automatic model as well as a foot pedal unit. Perl Straight Line Liquid Filling Machines handle containers from one ounce to five gallons in size.

Fully Automatic Bucket Feed Cartoner

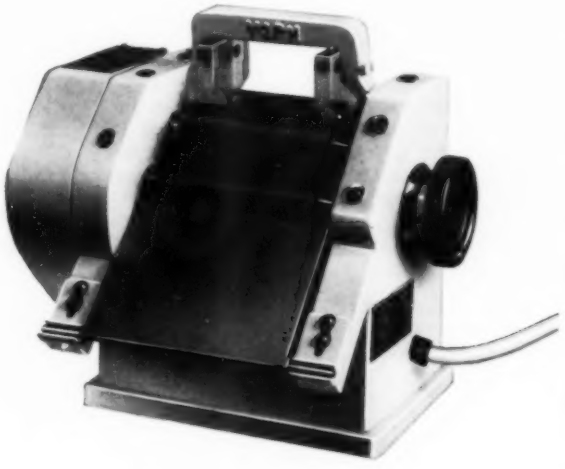
A new, versatile fully automatic bucket feed cartoner has been announced by Container Equipment Corporation, Bloomfield, N. J. Model 50, as this bucket style cartoner is designated, will package food, drug, and cosmetic, paper, and innumerable other products in straight or reverse style tuck cartons, glued cartons or a combination of both types. This production feature provides the user with flexibility of operation.

The Model 50 Cartoner is a continuous motion machine that assures smooth product insertion and is fully automatic from hoppering, closing or glueing the carton, to loading the product to be packaged. In fact, a recent model handled double pillow packages

of cake mix at a speed of 100 per minute. In addition, it has many automatic safety features including a No-Product, No-Carton Device which automatically insures that each carton is loaded with the product being packaged.

Small Ointment Mill

The Burnet Company, E. Midland Avenue, Paramus, N. J. is offering the Hammonia Minerature-Type Ointment Mill. This mill is compact, easy to clean, and is priced low. It is for pilot plants, and for production of small lots of pharmaceutical ointments. A



larger model is also available for larger scale production.

Also available from the same company is the Hammonia Tube-Filling Machine, also useful for pilot plant production and small lots. A manually operated tube sealing machine is also offered.

Automatic Capper

Swan-matic Model 55-CF Automatic Capper has been developed and released by W. H. Swanson & Company, Wilmette, Illinois. This unit was especially introduced for the application of semi-rigid plastic closures on semi-rigid or rigid containers, requiring gradual roll-on pressure for proper seating.

Of particular interest is the all chrome plated loading tube for closures or caps (having a capacity of 100 caps), chrome plated chute slide and vibrator unit. Immediately following the discharge end of cap chute is a series of rollers for application of caps onto containers. This entire unit is mounted in a closing head, which is quickly adjusted for various height containers having the same diameter cap size. Speed of capping up to 150 containers per minute depending upon size and type of container. Cabinet is of Hi-bake white enamel finish and is 28″ wide by 20″ deep. Conveyor height adjustable from 32″ to 36″.

Closing head unit only can be furnished for attaching to customer's conveyor.

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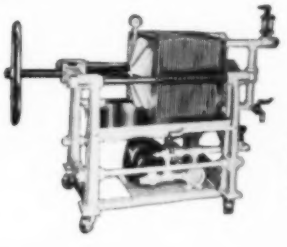

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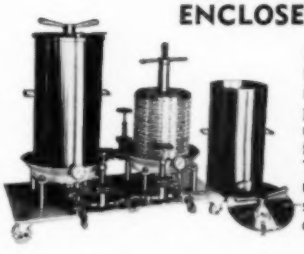

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Advancing Therapy

Hypertension Treatment

A trial of two new ganglionic blocking agents in the treatment of severe hypertension is reported by S. Locket (*Brit. Med. J.*, 1956, 2, 116). The compounds used were N_1:N_1:N_2-trimethyl-N_1-(6-cyano - 6:6 - diphenylhexyl) ethylene - 1 - ammonium - 2 - morpholinium dichloride (356C54) and its 5-cyano-5:5-diphenylpentyl homologue (139C55). For intravenous or subcutaneous injection, the drugs were used in a solution containing 20 mgm. of the dichloride per mil. Injections were given once (or sometimes twice) daily, as the compounds have a longer duration of action than other hypotensive agents. It was shown that they also have the advantages of a gradual onset of activity. Results in the treatment of 15 patients were considered "most satisfactory;" no patient was made worse by treatment, and in everyone in whom a change occurred, it was for the better. The important property of these drugs appears to be a dissociation between their activity as hypotensive agents and their ability to produce ocular changes and such disturbances as dry mouth and delay in gastric emptying. This property is more evident in 139C55.

Acetyl-p-Aminophenol

Clinical tests in 121 patients under conditions where Tylenol elixir (120 mg. of N-acetyl-*p*-aminophenol per 5 cc.) would be used as a pediatric analgesic and antipyretic produced effective antipyretic and analgesic responses and no evidence of side-effects that could be attributed to the medication according to D. A. Cornely and J. A. Ritter (*J.A.M.A* 160:1219, 1956). Prolonged administration of Tylenol to 20 hospitalized children produced no undesirable side-effects and had no effect on the hemoglobin concentration, total luekocyte count, or differential leukocyte count. Special tests in five of these patients indicated that prolonged administration of Tylenol had no effect on the prothrombin, bleeding, or coagulation time.

These clinical studies with Tylenol indicate that this drug may be administered to infants and children.

Aminometradine

Aminometradine, 1 - allyl - 3 - ethyl - 6-aminotetrahydropyrimidinedione, produces an increased flow of urine after oral administration. Its precise mode of action is not clear but is believed to be that of inhibiting the re-absorption of sodium ions by the renal tubule; potassium excretion is slight and variable. The drug does not affect carbonic anhydrase or succinic dehydrogenase and appears to have no significant effects on renal blood flow or glomerular filtration rate. In contrast to acetazolamide or the mercurial diuretics, aminometradine does not alter urinary pH nor does it cause significant changes in the systemic acid-base balance. Like acetazolamide and the xanthines, however, the drug has only minimal diuretic effects in normal, nonedematous individuals.

Aminometradine is an effective agent for the treatment of edema in patients with congestive heart failure. It is sometimes effective in producing diuresis in these patients when the organic mercurials fail. Conversely, other patients may respond well to the mercurials but not to aminometradine. Although the most satisfactory results with aminometradine have occurred in patients with congestive heart failure, the drug has also been of value in certain other conditions characterized by edema. Thus, in some patients with cirrhosis of the liver or the nephrotic syndrome, its administration may produce a moderate diuresis. There is also some preliminary evidence that aminometradine may be useful for the treatment of edema associated with the administration of adrenal cortical steroids and phenylbutazone. Sufficient valid evidence is lacking, however, of the drug's usefulness in toxemia of pregnancy or premenstrual tension.

Aminometradine has not so far been reported as causing serious toxic effects, and there are no known contraindications to its use. Minor side-effects are common; nausea and vomiting occur in about 20 to 30 per cent of the patients to whom it is administered. Other side-effects such as anorexia, headache, and diarrhea are infrequent and mild.—*J.A.M.A.* 162:116, 1956.

Caries and Pyridoxine

Suggestive evidence in animals that tooth decay may be reduced by the simple expedient of adding pyridoxine (vitamin B_6) to the diet is reported in the current issue of the New York State Dental Journal by Dr. Lyon P. Strean of the Merck Sharp & Dohme Research Laboratories and Mrs. Elizabeth W. Gilfillin and Dr. Gladys A. Emerson of the Merck Institute for Therapeutic Research.

The investigators report that hamsters fed with increased amounts of vitamin B_6 showed one-sixth as much tooth decay as those receiving only enough of this vitamin to maintain normal growth. These preliminary results point to the possibility that vitamin B_6 may be important in preventing human tooth decay.

Ristocetin

Ristocetin, a new experimental antibiotic announced by Abbott Laboratories, is active against gram positive cocci and in high concentrations appears to be bactericidal. Laboratory and animal studies indicate that it is relatively nontoxic and resistance to the antibiotic is not readily acquired. Initial studies with a limited number of patients also show that ristocetin is effective against various staphylococcic, pneumococcic and streptococcic infections. At present it can be administered only intravenously because of irritation and pain on injection and oral dosages do not provide effective blood levels.

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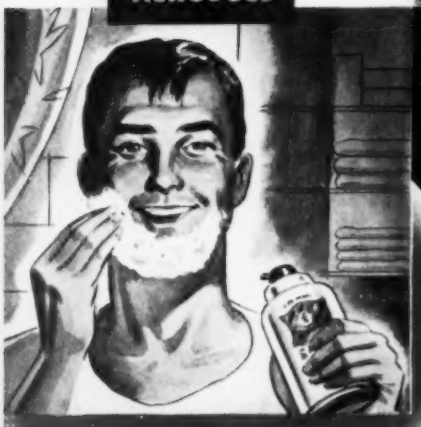

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Morphine and Barbiturate Antagonists

Two useful compounds—bemegride as a barbiturate antagonist and amiphenazole to reduce the side effects of morphine without impairing its analgesic activity—have previously been reported and described in these columns (August 1956, p. 243; April 1956, p. 535; April 1955, p. 545). They are now being made available for clinical investigation in this country by A. & G. Nicholas Ltd., c/o Muller & Phipps (Asia) Ltd., One Park Avenue, New York, and eventual approval of pending FDA new drug applications should result in general distribution. Amiphenazole, trade marked "Daptazole," has been reported to show marked and lasting antagonism to the respiratory depression caused by morphine, with only insignificant effect on the analgesic action. Bemegride, trade marked "Megimide," along with "Daptazole" is used in the treatment of barbiturate intoxication resulting from overdoses.

Neomycin

This review of neomycin by B. A. Waisbren (*Practitioner* 176:39, 1956) is based upon the author's personal experiences with it in the laboratory and in treating approximately 300 patients during the past six years.

Antibacterial spectrum—It has the widest antibacterial spectrum of any of the antibiotics, but is relatively ineffective against streptococci.

Mode of action—It is the only antibiotic with a wide antimicrobial spectrum that is bactericidal; the concentration that will inhibit bacteria will usually kill them.

Bacterial resistance—The author has not been able to demonstrate increasing resistance while patients are being treated.

Toxicity—It is too toxic to be used parenterally, except in selected patients. Parenteral neomycin has caused progressive, irreversible deafness in at least 10 per cent (but not total deafness in all cases). Renal damage has always been reversible if neomycin was stopped when oliguria and nitrogen retention occurred. Neither renal toxicity nor nerve deafness has been found after oral or topical neomycin.

Dosage and methods of administration—It can be administered topically, intravenously, intramuscularly, intrathecally, intrapleurally, intraperitoneally, in joint cavities, and by aerosol.

Aerosol neomycin—Neomycin given by aerosol is the most effective antimicrobial agent in the management of patients with chronic bronchitis, bronchiectasis, and emphysema: the authors have obtained a reduction of sputum, fever, cough, and symptoms in the great majority of more than 100 patients. Neomycin given by aerosol for six weeks was successful in treating lung abscess in two elderly, debilitated patients who could not tolerate surgery or massive chemotherapy.

Oral neomycin—Neomycin used alone is satisfactory as a preoperative bowel preparation. Oral neomycin is useful for treating diarrhea due to certain strains of E. coli and Proteus morganii. It is useful for treating Shigella carriers who do not respond to chloramphenicol. Neomycin is demonstrable in the blood stream after an oral dose of 0.5 gm.

Topical use of neomycin—Its wide antimicrobial spectrum makes it particularly useful as a topical agent in many conditions, including varicose ulcers, infectious eczematoid dermatitis, pyogenic dermatitis, and secondary infections in severely burned patients.

Iron Deficiency

Nutritional factors are of major importance in the production or prevention of iron deficiency according to C. V. Moore and R. Dubach (*J.A.M.A.* 162: 197, 1956). Under some circumstances, when the intake is greatly increased, they can be responsible for iron overload. Healthy persons probably maintain a positive iron balance by a narrower margin than was formerly believed. Approximately five to 10 per cent of the iron in food seems to be assimilated by normal adults; daily retention on a diet containing 12 to 15 mg. of iron, therefore, can be estimated to be about 0.6 to 1.5 mg. The amount of iron lost from the body each day in all ways except as blood seems to be between 0.5 and 1 mg. The requirements needed additionally by children and young women for growth and to compensate for menstrual flow place them in a precarious state of iron balance; poor diet or poor absorption can readily lead to the production of hypochromic anemia. In adult men or postmenopausal women, nutritional factors appear to be of less importance in the pathogenesis of iron deficiency. It is more likely that occult, intermittent bleeding, often difficult to detect, must also be present, along with inadequate diet or malabsorption, before severe degrees of iron deficiency develop.

One may conclude that for the normal child or the normal adult the recommendations of the Food and Nutrition Board for iron are adequate; however, they do not provide a wide margin of safety.

Ethyleneiminoquinones

E 39 (the alkoxyl derivative of ethyleneiminobenzoquinone) according to H. J. Wolf and N. Gerlich (*Ger. Med. Monthly*, vol. 1, p. 137, 1956), like other cytostatic agents, not only affects tumor cells but also normal tissue which has a high rate of cell proliferation. Leukopenia may be marked, but neither thrombocytopenia nor anemia have been observed. Results of E 39 treatment are the better the less differentiated and the more immature the tumor cells.

Intravenous administration, up to a total dose of 800 mg., has been found best and is well tolerated. Daily leukocyte counts are necessary to avoid profound leukopenia.

Indications for the use of E 39 include hopeless cases of cancer (palliation); treatment or prevention of extensive metastases; "chemotherapeutic protection" in conjunction with radical surgery; local treatment of pleural and peritoneal carcinomatosis; direct infiltration of inoperable primary neoplasms or large metastatic nodules.

E 39 produces no significant side-effects and has shown considerable palliative effects in many of the 72 patients who have been treated with it via the intravenous route. Further clinical trials are needed to determine its ultimate place in the chemotherapy of neoplasms, to define more definitely the indications for its use, and to discover the best mode of administration for different tumors.

New Pharmaceuticals

Covatin (W. R. Warner, London) is a tranquilizer for producing daytime sedation without hypnosis that is not as yet being promoted in the United States. Its chemical formula is p-butylthiodiphenyl - methyl - 2 - dimethylaminoethyl sulfide hydrochloride and it is available as 50 mg. sugar-coated tablets in bottles of 50 and 500.

Pacatal (W. R. Warner, London) is 9 - (1 - methyl - 3 - piperidylmethyl) phenothiazine and is not yet being promoted in the United States. It is a tranquilizer claimed to be remarkably free from side effects and is being sold as 25 mg. tablets in bottles of 50 and 500 and as 2 ml. ampoules containing 25 mg./ml in boxes of 10 and 50.

Compounder's Corner

Gelatin Capsules

Capsules are composed of a coating or shell enclosing a medicament or fill and both of these play a part in determining the stability of the product. The shell is composed of gelatin, a plasticizer (usually glycerin), a preservative, and a varying amount of water. The water content rapidly develops an equilibrium with that of the surrounding atmosphere and capsules undergo remarkable changes in the process. For example, a spherical capsule which in an atmosphere of moderate humidity (40-50 per cent relative humidity) is taut, yet agreeably flexible, will become glass-hard at 20 per cent relative humidity and flaccid and unmanageably soft at 80-90 per cent. Not only the flexibility, but many other properties of the capsule coating are affected by changes in moisture content. Examples of harmful changes to be expected when a capsule becomes excessively moist are:

(*a*) Greater permeability of the coating to air, hence a possibility of increased attack on oxidizable constituents;

(*b*) Diffusion of water-soluble substances into the coating, possibly leading to changes in appearance and solubility and to unexpected chemical reactions; and

(*c*) Dilution of the preservative, with possibility of mold growth, particularly if a preservative is used which distributes itself between the coating and the contents.

Consideration must be given to the expected storage conditions of time, temperature and humidity and practical tests must be made under the precise conditions that are expected. For tropical storage, the screw-capped vial with an internal waxed-cork seal may be taken as a standard of comparison for the more modern types of package. Some glass-plastic and all-plastic containers are excellent under laboratory test, although a number will fail in practice through mechanical weaknesses. Metal containers, with the exception of the lever-lid tin, have proved of doubtful value. For home consumption many manufacturers successfully pack capsules in cardboard containers, preferably with a moisture-proof film wrapping, but such packages are not immune to careless handling by the retailer and customer.—H. E. F. Notton, *Pharm. J.* July 28, 1956.

Sequestering Agents

In the cosmetic industry according to R. L. Smith and P. Womersley (*Chem. Prod.* 17:233, 1956) the use of sequestering agents allows soaps to be used irrespective of the hardness of water. There are indications that with the correct and effective use of E.D.T.A., soap should be able to stage at least a partial come back in some of the domestic uses where it has been ousted by the synthetics.

The quaternary ammonium bactericides lose their efficiency in hard water and should be protected with a sequestering agent wherever possible. In hair waving solutions, E.D.T.A. prevents the oxidation of alkaline sulfite solutions by the air through the elimination of trace metal catalysis and also prevents the precipitation of the sulfites by hardness of heavy metals. The red coloration due to iron in thioglycolic acid cannot be prevented by means of any of the amino carboxylic acid sequestering agents, though their use will prevent hair damage due to excessive oxidation. In the dyeing of hair, the incorporation of E.D.T.A. both in a pre-rinse and in the actual dye solution improves the results. It is inadvisable that E.D.T.A. or such materials should be incorporated in dentifrices as it is probable that alkaline solutions of the amino carboxylic acids have a solubilizing effect on the calcium in the teeth. This point, however, does not affect cleaning materials for artificial dentures which are not of course dependent on calcium phosphate.

All cosmetic products containing oils, fats, gums and proteins benefit from the incorporation of E.D.T.A. which acts as an antioxidant by the suppression of trace metal catalysis which would otherwise cause rancidity and putrefaction.

Multivitamin Preparation Stability

The physicochemical procedures for prediction of stability at shelf temperatures by rate studies conducted at elevated temperatures have been applied to the vitamin components of liquid multivitamin preparations by E. R. Garrett of The Upjohn Company (*Journ. Am. Pharm. Assoc. Sci. Ed.* 45: 171, 1956). The procedures have been expanded to include statistical techniques to provide estimates of error in assays, the extent of confidence to be held in prediction, and recommendations of concentration adjustment to meet minimum assay specifications of the marketed preparations.

The rates of thermal degradation of ascorbic acid, vitamin B_{12}, folic acid, vitamin A, *d*-pantothenyl alcohol, and thiamine hydrochloride in a liquid multivitamin preparation have been studied at elevated temperatures and the orders of degradation determined.

Stability of vitamin components at room temperature has been predicted by work performed in a relatively brief time and the predictions confirmed within the estimated error by room temperature, shelf stability studies. Preparations, with recommended increases in initial concentrations to meet specified minimums after a one year shelf life, degraded at predicted rates.

Comment: This is an important contribution in the problem of developing valid methods of accelerated shelf testing; chemical deterioration obeys chemical laws and a time-temperature relationship can be developed to remove much of the uncertainty in extrapolation. Physical changes, as problems in emulsion stability, have not yet been amenable to exact treatment.

Dry Vitamin E Acetate Powder

Dry vitamin E acetate powder—25.0 per cent contains 250 milligrams d,l-*a*-tocopheryl acetate dispersed in each gram of a matrix of gelatin and carbohydrate and is being offered by Hoffmann-La Roche, Inc. Processed in the same manner as Roche dry vitamin A acetate powders, this vitamin E product has approximately the same texture and appearance as the dry vitamin A acetate powders.

The dry vitamin E acetate powder can be incorporated with the customary multivitamin granulations in producing a tablet of uniform vitamin E potency. Unlike the crystalline acid esters of tocopherols, it does not melt or liquefy at processing temperatures or when mixed with other vitamin entities, thereby causing sticking or binding in tablet dies and cracking of tablets during shelf life.

Roche dry vitamin E acetate—25.0 per cent, when incorporated in dry granular multivitamin preparations, disperses in milk, fruit juices and water. The vitamin E potency of the prepared dispersions is well retained during several days' storage in household refrigerators.

The dry vitamin E acetate powder—25.0 per cent is stable when stored in the customary shipping containers and also when processed into dry pharmaceutical tablets. Very little or practically no measurable loss of vitamin E potency occurs during normal handling and storage.

The preparation contains 250 International Units of vitamin E per gram. Since all components of the granule are readily digestible, the biological activity is fully available. d,l-*a*-Tocopheryl acetate is the International Standard for vitamin E—1.0 milligram of d,l-*a*-tocopheryl acetate—1.0 International Unit of vitamin E.

Calamine Lotion

Several calamine lotions were prepared in which the use of Veegum as the suspending agent in a concentration of one per cent or 1.5 per cent is recommended by L. A. Willits and E. A. Holstius (*J. Am. Pharm. Assoc. Pract. Ed.* 17:87, 1956) as sufficient for a uniformly suspended and readily pourable calamine lotion.

The use of one per cent Veegum is sufficient for a satisfactory calamine lotion when the recommended wetting agent is used.

The use of a wetting agent is desirable to improve the quality of the lotion by permitting the insoluble materials to be quickly and uniformly wetted and thereby easily incorporated into the preparation with a minimum of difficulty.

The wetting agent which appears to be the most satisfactory for calamine lotion is the nonionic wetting agent Pluronic F-68 in a concentration of 0.1 per cent.

Reduction of particle size of the calamine and zinc oxide has an influence on the quality of the lotion as regards the prevention of caking and, despite any thickening tendency of the settled portion, the preparation is easily resuspended to provide a uniform and readily pourable lotion.

Ethulose

A cellulose derivative which is useful as a thickener, emulsifier, adhesive, and binder and is quickly and easily soluble in cold water, has been announced by Gaston Johnston Corporation, Long Island City 3, N. Y.

The product, Ethulose, is an ethylhydroxyethyl cellulose, derived from alpha wood pulp, and consists of white, compact, neutral, free flowing granules, readily soluble in water of any temperature. It is available in three viscosities: 20, 100, and 600 centipoises. Solutions keep indefinitely and do not mold.

Merck Sorbitol

Merck & Co., Inc. announces that plans for the production of sorbitol solution, which is widely used in industry as a humectant or moisture conditioner, have been completed and that marketing of the product is expected to begin within a few weeks.

Sorbitol solution will be manufactured at the company's Cherokee Plant in Danville, Pa., where a new modern hydrogenation unit has been installed to produce the product. Initially, Merck will market sorbitol as a 70 per cent aqueous solution. Other forms of the product will be added to the line as plans develop.

Vancide 89

Vancide 89, N-trichloromethylmercapto-4-cyclohexene-1, 2-dicarboximide, is available from R. T. Vanderbilt Co., Inc., New York, as a bactericidal and fungicidal compound. It is now being used as one of the major ingredients in a nationally distributed anti-dandruff preparation. The compound is insoluble in water, but easily soluble in acetone, chloroform, polyethoxylated vegetable oils and polyethoxylated fatty acids. Orally, its toxicity to rats (LD_{50} 9000 mg./kg.) and to rabbits (LD_{50} 2000 mg./kg.) is very low. Topically, a 50 per cent paste applied to the skin is not a primary irritant, while subcutaneous injections show that the material is a moderate, but not severe sensitizer. Over-all, toxicological studies have shown Vancide 89 to be a safe bactericide-fungicide for human use.

The compound inhibits the growth of gram positive and gram negative bacteria and fungi at concentrations of the order of 25 ppm. It is suggested for use not only in dandruff preparations, but also as a germicide in soaps, shaving creams, deodorants, and in athlete's foot preparations.

Crystalline Enzymes

Crystalline enzymes, hitherto limited by their high cost to a few medicinal uses, are now being made available for general purposes, including veterinary and beauty preparations. These developments are the result of improvements in current large-scale production of the enzymes, and end uses are being evaluated by Norman Applezweig Associates in New York City.

Synthetic Water-Soluble Resin

Dimethyl Hydantoin Formaldehyde (DMHF) Resin is now being produced in tonnage quantities by Glyco Products Co., Inc., New York. This is a water-white resin which dissolves readily in water to give low viscosity solutions even at high concentrations. It is soluble in alcohols, esters, ketones, chloroform and methylene chloride and insoluble in aromatic solvents, ethers, trichloroethylene and carbon tetrachloride. With suitable plasticizers, it deposits flexible films. It is compatible in all proportions with gelatin, dextrin, starch, polyvinyl alcohol and neutralized polymethacrylic acid. It is compatible over a range, with sodium carboxymethyl cellulose casein and zein. These properties make it obviously applicable in wave-set preparations, either as such or in aerosols.

Lipo Gantrisin Acetyl (Hoffmann-La Roche) provides prolonged blood levels; each teaspoonful provides the equivalent of one gram of Gantrisin in a readily absorbable vegetable oil emulsion.

Synalgos (Ives-Cameron) is an analgesic-relaxant in headache treatment and contains promethazine hydrochloride, mephentermine sulfate, acetylsalicylic acid and phenacetin.

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Skin Research

Suntanning

The degree of sunburn that develops in response to a given dose of ultraviolet radiation is a function of a number of environmental and individual variables. Furthermore, the range of safe dosages varies considerably between individuals and from time to time and from skin site to skin site in the same individual.

Radiation that produces sunburn constitutes less than 0.2 per cent of total sunlight and is its most variable part. Seasonal changes are important. In the North Temperate Zone, the maximum insolation occurs on June 21; it is quite possible that a more severe sunburn may be received at the beginning of May than at the end of August. The time of day is another important variant in the erythema-producing rays. Even on a bright mid-summer day no sunburn is likely to occur from exposure before 8 a.m. and after 4 p.m., in contrast to midday, when the maximum degree of sunburn can be expected.

Conditions of the atmosphere contribute to the effects of the sun on the skin. Sky radiation, which is sunlight that has been scattered by the gas molecules of the atmosphere, will produce burning without exposure to direct sunlight. On lightly overcast days, particularly in a fog, the burning rays are scattered and can produce severe sunburns. By contrast, dirt particles and smoke that contaminate the air may provide considerable protection against sunburn by absorbing sunburn-producing rays.

Three distinctly different physiological processes can result in tanning: (1) the production of new melanin granules in the melanocytes in the basal layer, (2) the outward migration of pigmented cells and melanin granules, and (3) the oxidative darkening of performed melanin.

The first two processes constitute "true" tanning, which is caused by the rays of the sun in the burning range. Since sunburn is a prerequisite, a preparation that prevents all burning rays from reaching the skin will prevent "true" tanning. After adequate exposure to the sun, pigment migration does not begin for at least 24 hours, and new pigment formation requires a few days. Therefore, the skin will not be obviously darkened until several days after exposure. Although a tan may persist for months or years, the thickening of the corneum, which makes the skin relatively immune to future sunburn, disappears approximately two months after the last exposure to the sun.

Tanning by oxidation of existing pale melanin that has persisted from a previous tan is simpler and more rapid than "true" tanning; however, the individual tanned by this mechanism is deprived of a major source of resistance to future sunburn. The stratum corneum does not thicken. Tanning by this process is not dependent upon sunburning but is caused by ultraviolet rays beyond the burning range. For this reason, it may occur at those times when sunburning is not expected, such as in early morning and late afternoon, in very early spring, and in late fall. In contrast to primary melanization, tanning by oxidation may take place in a matter of minutes after exposure to sunlight and through most window glass. Suntan preparations formulated to screen out all burning rays permit only this type of tanning, provided that the longer waves are not also absorbed by the sunscreen. This is the only type of tan that can occur in a day or a week-end. This obviously requires a special set of circumstances and rules out the possibility of a one-day tan for a major portion of the population.

There is indisputable evidence that continued exposure to the sun weathers and ages the skin. The clinical picture resulting from chronic excessive sun exposure has been frequently described in medical literature. Gradual and inevitable changes take place in the superficial blood vessels of the exposed surfaces. The connective tissue of the skin undergoes degenerative changes that are reflected on the surface by wrinkles and a coarsening in skin texture.

Since the hair is an appendage of the skin, it is appropriate to include a caution on the cosmetic effects of overexposure of the hair to the sun. In the period of exposure required to produce a significant suntan, hair exposed to the sun may assume many of the same characteristics as chemically bleached hair, except possibly that the hair is unevenly lightened in color. In time, sun-bleached hair becomes brittle and unmanageable, and neither oil treatments nor other claimed cures can restore the hair to its normal state. Hair waving, either of a temporary nature as in setting or in permanent waving, may produce inferior results on sun-damaged hair. There is no evidence at present that future hair growth or characteristics are altered by such overexposure.

The main advantage of suntan preparations is they permit an individual to remain in the sun for a longer time without severe burning than if the skin were unprotected. Suntan preparations contain chemicals called sunscreens, which absorb the burning rays of the sun in varying degrees. The first commercial sunscreen appeared in 1928 and was a combination of benzyl salicylate and benzyl cinnamate.

If a suntan preparation is claimed to be a preventive or treatment, it is regarded as a drug and must be labeled with the active ingredient, in this case, the screening agent. If the product is represented solely as a means of acquiring a tan, it is regarded as a cosmetic and the label need not include any statement on ingredients.—*J.A.M.A.* 161:1480, 1956.

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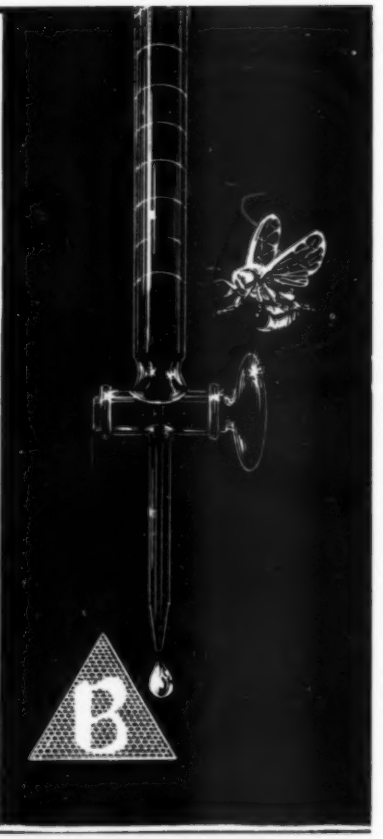

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Monobenzone

Monobenzone, accepted for inclusion in New and Nonofficial Remedies, is the monobenzyl ether of hydroquinone. It is a melanin-pigment-inhibiting agent. The depigmenting action of the agent was discovered accidentally when it was observed that the hands of certain workers who used rubber gloves in which it was incorporated as an antioxidant developed areas of hypopigmentation. Monobenzone produces this effect by interfering with the formation of the pigment melanin. It is believed that the drug inhibits the enzyme tyrosinase, thus blocking the oxidation of tyrosine to dihydroxyphenylalanine, a precursor of melanin. It does not destroy or inhibit melanocytes; therefore, depigmentation is temporary and reversible.

In certain patients, the drug may be expected to produce a gradual decrease in skin pigmentation. Successful treatment apparently depends on several factors, such as frequency of application, concentration of the drug, and individual variation in susceptibility. Not all patients experience equally satisfactory cosmetic results; some are completely resistant to the agent. Since the action of the drug depends on the inhibition of new melanin formation, it follows that depigmentation of the skin will not become apparent until the preformed pigment has been exhausted. The speed with which this is accomplished is variable; generally periods of several weeks or months are required. Depigmentation usually persists for a considerable period after cessation of therapy; however, the drug does not permanently eradicate or cure hyperpigmentation. Thus, modified therapy must be continued indefinitely for continued cosmetic results.

Dermal irritation occurs in a substantial percentage of patients using this drug. This can range in severity from mild erythema to dermatitis. In some patients, this irritant effect is temporary and does not necessitate discontinuation of therapy; in others, an eczematous sensitization to the drug can occur. The drug can also produce an excessive, and unsightly, loss of pigmentation in some patients or a patchy, uneven area of depigmentation that may extend beyond the areas desired. There is no evidence of systemic toxic effects from its external use. Although monobenzone appears to be promising as a skin depigmenting agent, further study is necessary to determine its ultimate usefulness and safety.—*J.A.M.A.* 162:974, 1956.

Deodorant Irritation

In four cases of a new and unusual type of eruption in the axillas due to deodorant and antiperspirant preparations reported by L. Rubin et al. (*J.A.M.A.* 162:953, 1956) the clinical appearance was characteristic and the histopathological pattern revealed a characteristic granuloma suggesting a tuberculoid reaction. Since the original patients were observed, 11 others have been seen by members of the group. It appears that these cases are becoming more frequent. Therefore, further study is indicated to trace the offending mechanism.

As yet there is no proof of the cause of the unusual reaction observed, but the role of sodium zirconium lactate, the entire deodorant preparation, and its individual components are being investigated. The role of abrasion is also being investigated, because of the appearance of some lesions in lines, suggesting occurrence in razor abrasions. The deodorant preparations used by several of the patients suggest in their advertising that they may be used immediately after shaving the axilla.

Artificial Nail Dermatitis

A case of contact dermatitis was reported by Canizares (*A.M.A. Arch. Dermatol.* 74:141, 1956) in a manicurist constantly exposed to acrylic materials used in the preparation of artificial nails. The sensitizing agent was found to be the liquid monomer methylmethacrylate.

The decreasing reactions obtained with mixtures of the powder polymer and the liquid monomer seem to indicate that the ability to cause eczematous dermatitis decreases gradually, although a minimal reaction was obtained with a mixture four weeks old. Since artificial nails are kept by the persons a variable period of time (from two to six weeks), this would indicate that during most of the period that they are in place they are capable of eliciting a reaction on a sensitized person.

The long-range effect of continuous applications of acrylic materials on the nails, beside the possible sensitizing action that the contact with the liquid will have, has not been determined as yet. Some persons apparently noticed thinning and splitting of the true nail.

Contact Sensitivity

This paper by F. C. Combes and G. E. Morris (*Ind. Med.* 25:289, 1956) emphasizes the limited exposure that induces in some patents a recurrence of an eruption due to allergens to which they have been previously sensitized. The first of the patients had been employed by a manufacturer of antibiotics for nine months when a dermatitis of her hands, wrists, forearms, and face, for which she was hospitalized, developed. Subsequently she experienced recurrences of urticaria or dermatitis when she only shared a room with a patient who received an injection of penicillin or when she used the same toilet as a person who had recently had an injection of penicillin. She could not even walk past the plant manufacturing antibiotics where she had formerly worked without having a recurrence of urticaria. A second patient, who had also become sensitized to penicillin while working in the production of antibiotics, experienced a recurrence of conjunctivitis and periorbital dermatitis after working next to a girl who was sucking a penicillin lozenge.

Another case of extreme sensitivity concerned a man in whom a contact dermatitis had developed after working with naphtha; later the eruption recurred merely from entering a building where solvent fumes were present. Another man, who had become sensitized to phenol formaldehyde resins, had a recurrence of a vesiculoerythematous eruption after he talked to his coworkers, who had the fumes on their clothing. In a boy with a history of atopic dermatitis, the odor of lobster caused swelling of eyes and face.

Fluorohydrocortisone Ointment

A comparison has been made by B. Portnoy (*Brit. J. Dermatol.* 68:303, 1956) between the effects of 0.1 per cent fluorohydrocortisone ointment and 1.0 per cent hydrocortisone acetate ointment in 129 patients with pruritus ani, pruritus vulvae, infantile eczema, contact dermatitis and flexural pururigo. The fluorohydrocortisone ointment has an effect at least as good as that of 1.0 per cent hydrocortisone acetate ointment. The difference in action between the two compounds appears to be quantitative and not qualitative. No undesirable local or systemic effects were noted.

Comment: Due account must be taken, however, of the work of Fitzpatrick, Griswold and Hicks (J.A.M.A 158:1149, 1955) *who observed sodium retention in 20 patients after topical applications of fluorohydrocortisone acetate lotion and ointment.*

(Continued from page 617)

FORMULATION AND COMPOSITION OF VEGETABLE OIL SHAMPOO

Vegetable Oil Mixed into Shampoo		Fatty Acid Content of Resulting Shampoo	
8	per cent Olive Oil	0.5 per cent	Caprylic Acid
4	per cent Palm Oil	0.5 per cent	Capric Acid
8	per cent Coconut Oil	4.0 per cent	Lauric Acid
5	per cent Potassium Hydroxide	1.5 per cent	Myristic Acid
8	per cent Alcohol	2.3 per cent	Palmitic Acid
6	per cent Glycerine	1.2 per cent	Stearic Acid
3.0	per cent Oleic Acid	12.0 per cent	Oleic Acid
1.0	per cent Perfume	1.0 per cent	Linoleic Acid
57	per cent Water and Heat		

careful selection of these oils will produce any soap-type shampoo with a range of fatty acids to give range of properties desired.

In soft water a soap shampoo is hard to beat and has rarely, if ever, been equalled with any combination of synthetics. However, in hard water these fatty acid soaps form calcium or barium soaps which have little cleansing action, no foaming action and they form "a ring around the tub," leaving a scum on the hair or skin.

While there are several hundred synthetic detergents currently available relatively few of them have gained a real portion of the shampoo market. There is no question but that the salts of lauryl sulfate are the most important synthetic detergents in this market. Properly compounded they give excellent foam and leave the hair lustrous and clean. They have excellent stability in hard water and rinse quickly from the hair. A typical formulation is given:

40	Sodium lauryl sulfate (28 per cent active)
5	Ethanolamide of Coconut Fatty Acids
1	Lanolin
1.5	Ethylene Glycol Mono Stearate
	Glycolic Acid to bring to pH 7.4
0.5	Perfume
	Water—Sufficient to Bring to 100

The sodium and triethanolamine salts of lauryl sulfate are most commonly used. The amide contributes a real conditioning action and the glycol stearate gives a modified consistency.

In addition to the alkyl sulfates some of the other detergents which found a place in the shampoo formulations are the alkyl benzene poly oxy ethyl solfonates, the sulfonated mono glycerides of coconut fatty acids, the sulfated castor oils and the lauroyl sarcosinates. The nonionic detergents have found little application because of the low foaming activity and the cationic detergents have little cleaning action and are strongly adsorbed and held on the hair.

Evaluation

The evaluation of a shampoo is still one of the most difficult phases of shampoo promotion. In replacing a "cake of soap" shampoos have developed a number of cosmetic functions and their relative importance and value is hard to estimate. For example, it has always been assumed that a shampoo was primarily a

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cleansing agent, but an extensive study by Barnett & Powers[1] in 1950 showed that the sixteen leading shampoos which comprised 75 per cent of the shampoo market varied in their cleansing action from little if any cleansing action to good to excellent cleansing action. There was no evidence that cleansing power of a shampoo was any indication of its popularity and sales.

While the Barnett-Powers Test Method was a severe one, it was designed to accurately measure cleansing or scouring action under the conditions usually encountered in shampooing the hair, namely, at 38° C. with very gentle agitation for four minutes. The carbon-soil test on heavy cotton may be satisfactory for testing heavy-duty detergents, but for shampooing the use of wool "in the grease" was a much closer approach to actual conditions. The use of cuttings from a barber shop or beauty shop was very unsatisfactory as they did not offer a reproducible sample and they were seriously contaminated with dirt and oil. Ester, Henkin and Longfellow[2] clearly showed lack of uniformity of beauty shop clippings.

The Barnett-Powers Test in measuring the actual scouring or cleansing effectiveness of the leading shampoos and detergents clearly indicated that this quality has little value in determining the performance and popularity of a shampoo. There is no doubt that

(Continued on page 700)

TABLE I

Cleansing Power of Commercial Shampoos in Soft Water, Hard Water and Sea Water

0.5 Per Cent Shampoo—Type & Mfgr.	ph of 0.5 Per Cent Shampoo Solution	Per Cent of Total Soil Removed In Soft Water	In Hard Water	In Sea Water
Alkyl sulfate—Hudnut	7.7	62.6	64.3	31.5
Alkyl sulfate—Rubinstein	7.8	65.5	65.4	45.3
Alkyl sulfate—Prell—Toni	7.3	78.5	69.1	18.7
Alkyl sulfate—Drene—P & G	7.3	77.1	47.3	10.2
Soap—Woodbury	9.3	41.3	15.1	7.8
Soap—Conti	9.5	35.3	19.5	None
Alkyl sulfate—Rayette	7.9	42.6	27.4	12.4
Soap—Breck	7.8	22.2	5.1	None
Soap—Breck	7.9	14.1	4.0	None
Soap—Admiration—Turner Hall	7.6	22.6	17.1	None
Soap—Golden Oil—Hudnut	9.4	51.9	21.1	None
Soap—Wildroot	9.1	44.5	28.7	12.4
Miscellaneous—Ogilvie	6.6	42.5	24.6	None
Miscellaneous—Halo—Colgate	6.4	87.9	93.9	86.8
Non-ionic-cationic—Purity-Cross	7.5	92.2	57.6	44.9
Miscellaneous	10.5	39.4	28.4	14.2
Miscellaneous—Prot-Egg	6.6	46.2	34.6	13.9

Colonial adds that Selling touch!

CUSTOMERS often tell us that Colonial droppers and dropper assemblies add the "selling touch" that sparks unit sales. Yes, Colonial's eye appeal becomes real "buy appeal" in today's hurry-up marketing picture. Spotless Colonial dropper assemblies are one of the intangibles that help package units click with customers.

Caps and bulbs come in any standard color and in a wide variety of shapes and sizes. Droppers may be marked permanently with a wide range of calibrations through our silk screen process, using hard ceramic inks.

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COLONIAL APPLICATOR CO.

VINELAND, NEW JERSEY

Perfumer's Shelf

Perfume Preference

McCall's Magazine analyzed 3,000 questionnaires to determine the preference of women for perfumes and in this sample, 57 per cent used perfume regularly, 42 per cent occasionally and one per cent not at all. When asked to choose from a list of seven basic types of perfume, users thought they preferred woody-mossy types or modern blends as first choices, with descending order of preference for spicy, single floral, floral bouquet, oriental, fruity odors. When asked for preference in terms of actual use of a brand name fragrance, women preferred oriental, modern blends, woody-mossy, floral bouquet, spicy, single floral and fruity types. Although users think they know what they like, they are not always able to identify their preference.—*M. G. French, Second Symposium, American Society of Perfumers.*

Perfuming Cosmetics

In considering whether fragrance is needed in cosmetic products, a recent survey showed that consumers of deodorants or make-ups did not think that they wanted any fragrance, while consumers thought they wanted a real fragrance in a shampoo or hand lotion. In the case of a cleansing cream or night cream, a pleasing note is desirable, but, in tabulating the importance of fragrance (as expressed by the consumer) in cosmetic product, we would suggest the following listing with those products at the beginning needing the *least* fragrance and those products at the end requiring the most fragrance:

Make-up bases, antiperspirants, deodorants, lipsticks, cleansing creams, night creams, face powders, hand lotions, hair sprays, shampoos.

A recent panel study is particularly interesting in showing the unconscious value of a fragrance in product acceptance. Two shampoos which were identical, except for 0.2 per cent of fragrance, were panel-tested for performance. One product was preferred 80 to 20 on the basis of foaming and cleansing action, condition of the hair and luster, and there was no mention of fragrance. In other words, here is a case where two products with identical performance are rated as possessing entirely different performances solely on the basis of a trace of perfume.

It is of course interesting to see how fragrance can seem to effect the behavior and performance of a cosmetic. Perfumers surely feel that the proper fragrance will always favorably affect the consumer acceptance of a product. Whether this is true in the case of make-up bases or antiperspirants, as well as in the case of shampoos or hair sprays, we cannot say but can only surmise; however, our guess would be that the *proper* fragrance will invariably affect and improve the consumer acceptance of any cosmetic product.

The problem still remains to determine what is the *proper* fragrance for a given cosmetic product. Certainly, any perfume odor will not make a cosmetic perform better. What note should a fragrance add to the following cosmetic products to lead the consumer to the opinion that they are performing better?

Permanent Waving Lotions. These lotions are strongly alkaline, containing free ammonia or amines together with the strongly objectionable odor of mercaptoacetic acid. The ideal fragrance would cover the ammonia and mercaptan, but, since it is unlikely that any fragrance can achieve this effect, a stable, lasting note is needed that will remain on the hair after the ammonia has evaporated and the mercaptan has been used up.

Antiperspirants In these formulations acidity and aluminum salts are prevalent. Certainly, the fragrance must be stable in the presence of these destructive chemicals. The fragrance should leave a clean, fresh note and must not interfere with the preferred perfume worn by the user.

Face Powder. It is interesting that many powder users indicated a desire for a fragrance in this product. Clearly it must be a light, delicate note which is compatible with other perfumes.

Hand Lotion Historically hand lotions were formulated with lilac and later with almond and benzyl alcohol, and it is probable that for this reason many hand lotions have carried the fragrance of almond oil. Here again, a clean, fresh note is indicated.

Shampoos. In the perfuming of a shampoo, a great deal of freedom is indicated. In fact, it is suggested that a panel on shampoos with different fragrances may *offer a means of panel-testing fragrances.* Testing two different fragrances in the same shampoo formulations offers a means of determining which fragrance has broader general acceptance. It is indicated that in shampoos the fragrance is probably a most important component of the product and a panel test makes it possible to gain a measure of consumer preference for a fragrance without even mentioning the fragrance itself.—*D. H. Powers, Second Symposium, American Society of perfumers.*

Perfume Testing Panel

G. Carsch describes the method used to select a group of individuals with good perception over a full range of odors; above all, the selection eliminates those with poor odor perception and would reduce the dependability of the panel.

The specific aim with this aptitude test was to obtain a panel of 15 women with superior olfactory ability. In addition to this active panel of 15, another 15 were found to rate only slightly lower, and these represented a reliable reserve on whom to draw for additional or replacement panel members.

This panel does not represent a cross-section of the consuming public. First, panel members are keener in odor per-

ception and discrimination than the average; second, all are white-collar working women. With this limitation clearly in mind and aware of the fact that the panel members possess better than average olfactory ability but are in no way experts as perfumers, nevertheless this group can serve very effectively in a capacity which can be described as the "extension of the perfumer's nose." Specifically, the following can be accomplished:

The panel can most successfully be used to check on reproducibility or duplications. If any odor duplications are submitted to them on a Triangle Test basis and they cannot reliably distinguish between the original and the duplication, then it is evident that a very successful duplication has been accomplished.

The panel can be very helpful in determining adequate perfume coverage of a product. If a majority of the panel in an experiment designed to determine such coverage will consider that a nunpleasant base odor has been adequately covered, it would be safe to assume that the general public, whose level of perception is lower than that of the panel, will come to the same conclusion.

The panel can help to screen fragrances. While the functions mentioned before involve no value judgment in the first example and a limited value judgment in the second example, we now have a case which does call for value judgment and, therefore, approaches the functions of a consumer panel. The trained panel can properly be used to help screen from a group of presumably good odors for a given product the more desirable ones from the less desirable ones. Although the panel members are all from a single occupational group, it is important to remember that this group of white collar girls is not only an important user of cosmetics but also the group which sets the style. Therefore, we feel justified in using them as a screen to narrow down the number of fragrances which deserve to go out on large scale, expensive consumer tests.—*Second Symposium, American Society of Perfumers.*

Lemon Oils

Exchange Brand California Cold Pressed Lemon Oil USP is now being made available in two product types tailored to customer needs. Exchange Brand Lemon Oil USP, product specification number 410, is ideal for uses which require extracts of the highest clarity. The new Royal Line of Exchange Brand Lemon Oil USP, product specification number 413, was designed to meet specifications for emulsions and formulations requiring whole, unemulsified oil. Both Exchange Brand Lemon Oil types conform in every respect with the Exchange standards for unadulterated flavor, quality, uniformity and dependability.

In the future, all Exchange Brand lemon and orange oils will be packaged and closed with tamper proof seals at the Exchange plants, and newly designed labels will attest to their purity.

Exchange Brand citrus oils will be packaged in 385 pound drums, 35 pound tins, seven pound tins, and one pound bottles for distribution through Fritzsche Brothers, Inc., Dodge & Olcott, Inc., and Ungerer & Company.

Versalide

Versalide was evaluated by Givaudan perfumers in various floral compositions after its discovery, and its actions were compared with those of the nitro and macrocyclic musks. The results of these evaluations proved that Versalide rounded out and enhanced the compositions in which it was used. It was found to be completely stable under wide conditions of use, and it did not cause discoloration.

Evaluation tests also indicated that Versalide was an excellent alcohol prefixer, having the tendency to improve the quality of denatured alcohols in extremely low concentrations.

To sum up ". . . the perfumers concluded that Versalide has the same wide variety of uses that could be found for any musk, natural or synthetic. The compounding of floral, oriental, aldehydic, citrus and herb type odors for perfumes, colognes and soaps are all situations where Versalide can be used to advantage. The enhancing effect of a trace of musk in a composition is its most valuable property. The use of about 0.1 per cent to five per cent of Versalide can be highly recommended for imparting a finishing touch to all classes of perfumes. The value of Versalide for soap perfumery lies not only in its moderate price and excellent stability but also in its property of holding the odor to the soap."

Versalide in a depilatory composition has a depressing effect on the odor of the thioglycolate and sulfide used in this toiletry, a function which previously had to be accomplished by the perfume compound. This blanketing action allows the fragrance of the perfume blend to dominate and gives the perfumer more freedom of choice among the perfume constituents suitable for this product.

Versalide can also be used in a similar manner in hair waving lotions. Here too, it has a depressing effect on the basic odor of the product and aids in the solving of the perfuming problem.

Initial experimentation indicated that Versalide would be an excellent aromatic for use in soaps and detergents, and the experiences of the last year have proved this to be correct.

Experiments have indicated that very low concentrations of Versalide, when used in soap perfume formulations, would help mask the odor of the soap base and prevent interference with the fragrance of the perfume composition. With an increase in concentration, depending on the soap base and the nature of the perfume compositions, the musk can also be used in soap fragrances for its own odor value.

Incorporating Versalide in basic ingredients of synthetic detergents proved that it had a neutralizing effect on their inherent odor.

Versalide has proved to be extremely valuable in perfume compositions not only for its fixative properties but for its blending effect as well. As a fixative, it inhibits the selective volatilization of the various perfume ingredients during the different stages of drying and, when used in conjunction with the nitro or macrocyclic musks, Versalide has a tendency to intensify their odor and to prolong the character of the entire composition over a longer drying period.

The polycyclic musk has the unique property of being able to prefix alcohol in a ratio as low as one part of Versalide to 2000 parts of alcohol. It completely subdues the harshness of the alcohol and adds a blending effect to the finished product in which the prefixed alcohol is used. Alcohol pre-fixing should be done at least a month before its use in actual manufacture, but it is possible to add Versalide to the alcohol, add the perfume and allow normal shelf life and storage to take the place of the recommended month of standing.—*The Givaudanian.*

Mol-Iron with Vitamin C (White) contains, in each tablet, 195 mg. of ferrous sulfate, 3 mg. of molybdenum oxide and 75 mg. of ascorbic acid and is intended for the oral treatment of iron deficiency anemias. It is available in bottles of 100.

Amerchols®

LANOLIN CHOLESTEROLS in their most active form.

The Amerchols are non-ionic, natural EMULSIFIERS, PENETRANTS and EMOLLIENTS made from pure lanolin. They will help you achieve superior cosmetic and pharmaceutical formulations by markedly improving stability, texture, appearance and effectiveness.

An Amerchol such as multi-sterol, liquid **Amerchol 101** enhances softening, penetrating and spreading activity while holding desirable moisture to the skin. The surface active Amerchols function at the interface in oil-in-water emulsions to bring about these unique effects on skin and hair.

The Amerchols are ideal, stable ointment bases which induce rapid drug release, and promote optimum healing rates.

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AMERCHOL PARK EDISON, NEW JERSEY

Write on your business letterhead for technical literature and suggested formulas.

Readers' Questions . . .

Cream Nail Polish Remover: *We would appreciate any suggestions you may have to offer in the formulation of a cream or solid nail polish remover.* CHICAGO.

Polish removers, as you know, consist of powerful solvents for the nitro-cellulose lacquer of nail polishes. Attempts to reduce the cost of the pure solvent, acetone, ethyl acetate, butyl acetate, etc. are not especially successful when these are diluted, where possible, with water because the solvent power is drastically reduced. The use of various hydrocarbons, deodorized kerosene as an example, is quite successful in that, if anything, the solvent power is increased, especially for resin constituents of the polish. It should be possible to thicken, or solidify a suitable solvent mixture of this type with selected waxes. More usual, however, is an emulsified cream, in which a water-insoluble solvent must be used to avoid dilution with the water.

Stearic acid	**9.5**
Triethanolamine	**3.5**
Mineral oil	**10.0**
Butyl acetate	**50.0**
Butyl stearate	**5.0**
Carbitol	**5.0**
Water	**17.0**

Greaseless Lanolin Cream: *How can we formulate a vanishing cream that is non-greasy yet still contains enough lanolin so that claims can be made for its presence?* HOLLYWOOD.

This is not an especially difficult problem in that the emollient action of lanolin is evident when only a small proportion is present. Certain of the newer lanolin derivatives, free from the stickiness an odor of lanolin itself, may also be used as replacements and can be considered to be lanolin components of a cream. A good emollient vanishing cream can be made along the lines suggested by the following formula:

Glyceryl monostearate Emulsifyinggrade	**12.8**
Lanolin	**1.5**
Glycerin	**2.7**
Isopropyl myristate	**3.5**
Methyl paraben	**0.1**
Water	**79.0**
Perfume	**0.1**

Scalp Preparation: *What are the customary active ingredients in preparations for improving the condition of the scalp and hair?* BROOKLYN.

Precipitated sulfur is now very commonly used in so-called anti-dandruff preparations and its activity seems to be better as its particle size is reduced. Salicylic acid and sometimes resorcinol monoacetate are believed to have specific anti-seborrheal activity. An irritant, like pilocarpine hydrochloride or one of the nicotinic acid esters has some stimulating action on the scalp. Antibacterial agents, including complex sulfur derivatives as well as quaternary surfactants have also proven to be useful.

Cold Wave Neutralizers: *What substances are now being used as neutralizers for thioglycolate cold ware solutions?* PARIS.

The original cold wave neutralizer, potassium bromate in a solution made up before use by dissolving ¼ ounce in a pint of water, is still used extensively. Hydrogen peroxide, which has the disadvantage of being a liquid, is also used in a solution containing some organic acid. Sodium perborate is also a useful solid oxidizing agent.

Antiseptic Solution: *We are interested in your suggestions for preparing an antiseptic solution similar to the N.F. product but with reduced alcohol and which will remain clear when chilled.* LOS ANGELES.

The N.F. formula contains 30 per cent of alcohol (S.D.A. 38 B may be used) along with boric acid and a number of ingredients of relatively low solubility in water. These, thymol, chlorothymol, menthol, eucalyptol, methyl salicylate and thyme oil are present in small proportions and directions call for chilling to 210° C. and then filtering, which should give a solution that retains clarity when chilled. However, if you will experiment with the addition of Tween 20 or 80 to these ingredients it may be possible to obtain a clear solution containing less alcohol.

Electric Pre-Shave Lotion: *What are the active ingredients in electric pre-shave lotions?* MEXICO CITY.

Preparations of this sort are based upon alcohol with a small amount of astringents such as aluminum sulfate or zinc chloride. Another type of lotion contains a mild wetting agent emollient such as lecithin.

Bithionol: *What is "Bithionol," mentioned as an active ingredient in a commercial deodorant?* SOUTH BEND.

This compound, chemically, is 2,2′-Thiobis(4,6-dichlorophenol) and is described in U.S.P. XV, where it is characterized as local anti-infective. It is sold under the trade name "Actamer" by Monsanto.

Modulan®

The MODIFIED LANOLIN with new properties.

Modulan is the acetyl derivation of pure lanolin containing all the constituents of lanolin, modified by a unique treatment to impart NEW and VALUABLE PROPERTIES. (U. S. Patent No. 2,725,334)

Modulan forms clear solutions even in cold mineral oil and deposits hydrophobic, emollient films on skin and hair. These desirable protective films are waxy rather than tacky and are very pleasant to the touch.

Modulan is extremely hydrophobic—does not form greasy emulsions and is practically odorless. Because of its outstanding stability and compatibility with oil-in-water emulsions and with soaps and shampoos. Modulan is particularly recommended for use in creams, lotions, baby products, hair preparations, make-up, and ointments.

CLINICAL INVESTIGATIONS HAVE INDICATED THAT MODULAN IS HYPO-ALLERGENIC.

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● ACETULAN—T.M. *a new chemical design for cosmetics—COMING SOON!*

(Continued from page 695)

shampoos have some cleansing action but a thorough effective cleansing agent is not a good shampoo. A non-ionic shampoo gave the best cleansing action of any product tested but it was removed from the market within a few months of its introduction because of possible eye irritation. One of the poorest

(Continued on page 702)

TABLE II

Study of Commercial Shampoos by CONSUMER'S REPORT

Physical Type of Shampoo	Retail Cost per Ounce	Relative Effectiveness	Approximate Cost per Shampoo	Formed Precipitate in Hard Water
Liquid—Macy's Castile	4.9c	13	4.2c	yes
" Laskin	8.4	10	8.4	yes
" Wildroot Coconut	8.5	10	8.1	yes
" Watkins Coconut	8.5	8	12.8	yes
" Co-op Soapless	10.0	11	9.3	no
" Laco	10.0	10	9.9	yes
" Conti—Castile	11.0	12	'9.0	yes
" Fitch—Dandruff	12.0	10	11.5	yes
" Williams—Kreml	12.0	12	9.6	yes
" Cornell—Coconut	12.2	12	10.1	yes
" Antell	12.2	8	14.5	yes
" Breck—Normal	12.5	13	9.5	no
" Breck—Dry	12.5	13	9.8	no
" Cochrane	12.5	10	12.4	no
" Colgate—Halo	14.0	29	4.8	no
" P & G Drene	15.0	17	8.7	no
" Armour—Dial	19.0	28	6.7	no
LIQUID TYPE—17	11.5c avg.	13.3	9.3c avg.	41 per cent no 59 per cent yes
Lotion—Wildroot	12.2c	15	7.9	no
" Hudnut Enriched	12.5	13	9.3	no
" Toni—White Rain	14.3	14	9.9	no
" Rubinstein—Silk	15.6	12	13.0	no
" Revlon—Aquamarine	16.6	14	12.0	no
" Montenier—Finesse	25.0	18	14.8	no
LOTION TYPE—6	16.0c avg.	14.3	11.1c avg.	100 per cent
Cream—Sears—Glow	12.0c	31	3.9c	no
" Marlene—Waving	12.5	11	11.0	no
" P & G—Shasta	22.2	56	4.0	no
" Valentine No. 20	22.2	32	6.9	no
" Helene Curtis-Creme	22.2	27	8.2	no
" Colgate—Lustre Creme	25.0	40	6.3	no
" Larkin—Creme	25.0	26	9.3	no
" Toni Creme	25.0	25	10.0	no
" Avon Creme	25.6	28	9.0	no
" P & G—Prell	26.0	59	4.4	no
" Lever—Rayve	27.2	24	11.4	no
" Jewel—Velvatouch	28.0	32	8.9	no
" Yardley Creme	29.5	28	10.3	no
CREAM TYPE—13	23.3c avg.	32.2	8.0c avg.	100 per cent no

TABLE III

Evaluation of Shampoos by CONSUMERS' RESEARCH

Shampoo	Surface Tension 0.25 Per Cent	Wetting Time Seconds 1.25 Per Cent	Foam Test—Ross Miles Soft H_2O	50 ppm	Hard H_2O	Per Cent Soil Removal Powers-Barnett	Rating
Fitch	26.4	600	170	55	5	34.1	B
Palmolive	27.0	360	170	15	—	30.6	B
Laco	25.0	13	155	135	—	21.3	A
Mulsified	27.2	25	155	55	—	33.2	B
Packers	25.4	7	170	165	—	13.5	B
Conti	25.0	11	165	145	5	3.5	B
Wildroot	30.0	45	55	70	65	28.0	B
Kreml	30.2	15	170	165	25	8.5	B
Admiration	27.0	13	185	130	—	20.8	B
Marrows	27.0	15	70	60	—	15.2	B
Breck	27.0	10	140	125	85	23.6	A
Hudnut	30.9	39	95	70	60	36.1	B
Prell	24.4	9	215	190	30	35.5	A
Halo	27.5	23	170	170	170	42.6	A
Drene	24.4	9	205	105	30	4.4	A
Toni	31.0	33	165	165	105	35.8	B
Rayve	31.6	25	140	170	110	32.2	B
Lustre Creme	29.6	26	195	65	5	22.5	B
Marlene	28.0	24	165	170	55	53.4	B
Helene Curtis	33.5	53	120	40	40	48.8	B

This chart further emphasizes the problem of shampoo evaluation on the basis of specific tests. One shampoo gives excellent results by one test and poor results by another. Obviously, an advertiser will pick the test which shows his product best.

Industry's Books...

The Condensed Chemical Dictionary, *Fifth Ed., Completely revised and enlarged by Arthur and Elizabeth Rose, State College, Pa., 1200 pp., Reinhold Publishing Corp., New York, (1956), cloth,* **$12.50.**

Now with over 30,000 entries, the new Fifth Ed. is the largest and most complete chemical dictionary in both number and kind of entries, as well as in extent of essential information offered under each. Included is data on the chemical and physical properties of chemicals and raw materials; newest information on containers, shipping regulations and safety instructions; and new uses of chemicals in nuclear energy, chemotherapy and other fields of current interest. Hundreds of leading manufacturers have supplied up-to-the-minute information on trade name and trade mark products. This is a reference volume for all requiring quick access to essential data regarding chemicals and other substances used in manufacturing and research, and to terms in general use in chemistry and the process industries.

Hormones and the Aging Process, *Proceedings of a Conference held at Arden House, Harriman, New York, 1955, Edited by Earl T. Engle, College of Physicians and Surgeons, Columbia University, and Gregory Pincus, The Worcester Foundation for Experimental Biology, 323 pp., Academic Press Inc., New York, (1956), cloth,* **$8.50.**

It was felt by the chairmen of the symposium recorded in this volume that a useful purpose would be served by attempting to bring together basic biological findings developed during recent years along with specific clinical studies in which the basic studies have found and might find application. Accordingly a conference was held at Arden House in Harriman, New York, on May 30 and 31, 1955; it was sponsored by G. D. Searle & Co. of Skokie, Ill. It is the aim here to present modern experimentation as it is functioning operationally. The problems of the moment, the emphasis in latter-day research, the ideas and methods of the active investigators—these are what this book exposes.

Blakiston's New Gould Medical Dictionary, *Edited by Norman L. Hoerr, M.D., and Arthur Osol, Ph.D., with the cooperation of an editorial board and 88 contributors, 1463 pp., 252 Illustrations, Second Ed., The Blakiston Div. of McGraw-Hill Book Co., Inc., New York, (1956), cloth,* **$11.50**

With 12,000 new terms, 8,000 changes, and spellings and usages modernized throughout, this new edition keeps abreast of the very latest developments in medicine and allied fields. Even drugs in various stages of animal and clinical investigation have been defined. At the same time the editors have omitted obsolete or unusual terms, in order to present a dictionary of live language that is of optimum size. The many new terms from chest surgery and psychiatry, the new cancer and tumor terms, the new antiarthritic compounds, new words from nuclear science, are some of the additions that reflect new growth and new emphasis in various fields of medicine. A new table on isotopes has been added, and other tables have been expanded to include latest information. As in the first edition, the many beautiful color illustrations and fine black and white halftones are all in one section for handy reference.

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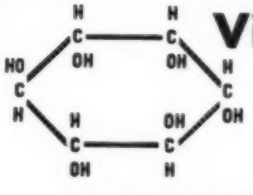

Modern vitamin and lipotropic preparations call for INOSITOL as an essential ingredient. You will find it worth-while to consider Inositol, a naturally-occurring member of the B-vitamin complex, when you're revising your vitamin formulations . . . also its important relationships to fat and cholesterol in the body and its synergistic lipotropic action recommend its use in new geriatric and lipotropic formulations.

Pure, crystalline ARGO® INOSITOL N.F. is easy to handle and comes in convenient 5, 10, 50 and 100 lb. containers.

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ARGO®

CORN PRODUCTS REFINING COMPANY

Chemical Division

17 Battery Place, New York 4, N. Y.

(Continued from page 700)

cleansers continued to be one of the largest-selling shampoos in the market.

In 1955 Consumers Report, January issue, studied and attempted to evaluate thirty-six commercial shampoos. In their evaluation they did not attempt to measure effective characteristics or performance but figured out theirs:

(a) comparative cost per ounce;
(b) the relative volume of product which seemed to be needed for a good shampoo; a dilute shampoo received a value of 10, a strong one a value of 50;
(c) its stability in hard water.

A study of Table II reveals that none of these properties explain why a shampoo sells. Where further information is needed, the original article should be carefully studied.

Five years ago Consumers Research made a more extensive study to evaluate commercial shampoos and tested the twenty leading products for theirs: Surface Tension, Wetting Activity, Foaming Power in Soft and Hard Water, Soil Removal by Barnett-Powers Test.

These data were published in the October 1951 issue of Consumers' Research and here again a careful study of these data gives no indication of what properties a successful shampoo must have. An advertising man in going over these data could surely find some favorable figures referring to his particular shampoo. As a matter of fact, the shampoo (Drene) that gives the best value for reducing surface tension gives the poorest value for soil removal.

In Table III the smaller the surface tension or wetting time, the more active the product, and the larger the foam value, the better the foaming action. Clearly the greater the per cent of soil removal, the greater the cleansing action.

COSMETICS AND TOILETRIES FOR MEN

(Continued from page 621)

6. The sale of *packaged* men's toiletries, not counting the individual items, is almost as large as the After Shave Lotion market, $25,000,000 a year.
7. Father's Day runs a close second to Christmas in volume of gift sales on men's merchandise. Eighty-five per cent of the purchases are made by women and children for this special occasion.

Yet, if you believe the Old Spice scent is only good for men and women—you are wrong. It is also good for raising Chinchillas, of all things. The following amusing story came to us about Dr. C. W. McCarver, Head of the Health and Physical Education Dept. at Mississippi Southern College. Dr. McCarver originally bought two pairs of Chinchillas for breeding purposes. Within one year he owned 18 of the blue-furred rodents

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announces the
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1. **Transparent** Non - evaporating solid cologne
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*The non evaporating deodorant stick and deodorant soap contains BIOSEPT 35, a highly effective and clinically evaluated antiseptic and deodorant compound.

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Trade Literature

Rauwolfia and Alkaloids

The Research Division of S. B. Penick & Company, 50 Church Street, New York 8, has issued a fifty-page booklet containing a bibliography on Rauwolfia and its Alkaloids, and covering the chemistry, the pharmacology, the pharmacognosy, and the therapeutic uses of these drugs.

Pyridine Derivative

Carbide and Carbon Chemicals Company, 30 East 42 Street, New York 17, has issued a six-page technical bulletin on 2-methyl-5-ethyl pyridine giving properties, specifications, shipping data, and applications. Typical reactions are also described.

Glycerine Data

Glycerine—Terms, Tests, Technical Data, is the title of a new 19-page booklet describing the commercial grades, definitions, specifications, test methods, and shipping and storage requirements of glycerine, just issued by the Glycerine Producers' Association, 295 Madison Avenue, New York 17.

Colton Comments

Colton Comments, Vol. 1, No. 1, is the first issue of a new house organ now available from Arthur Colton Company, 3400 East Lafayette, Detroit 7, Mich. This four-page, two-color publication describes a wide variety of new equipment for various industries.

Industrial Waxes

International Wax Refining Company, East Hawthorne Avenue and LIRR, Valley Stream, N. Y., has issued a price list and description of its waxes including cosmetic wax, micro waxes, beeswaxes, and many more.

Papain

S. B. Penick & Company, 50 Church Street, New York 8, has issued a 24-page pamphlet on the versatile enzyme Papain. Published as Volume II of Penick Cues, the pamphlet enumerates the uses of papain in industrial, medicinal, and veterinary fields; and it contains information on the stability, assay, chemistry, and pharmacology of papain, as well as a bibliography.

Merck & Co. Today

Merck & Co., Rahway, N. J., has issued a 28-page booklet entitled For Better Health and Better Living, which through its two color, profusely illustrated treatment, tells the story of Merck & Co. of the present time.

Polymerized Fatty Acid

A 20-page booklet entitled Empol 1022 Polymerized Fatty Acid is available from the Organic Chemical Sales Department of Emery Industries, Dept. 5, Carew Tower, Cincinnati 2. In addition to complete description, specifications, characteristics, and shipping data, the booklet contains considerable application data.

Sodium Lauryl Sulfate

Raymond Laboratories, Chemical Sales Department, 261 East Fifth Street, St. Paul 1, Minn., has issued a new booklet on Pendit WA Cosmetic, the company's brand of sodium lauryl sulfate. The booklet supplies complete technical data including uses; specifications for each of three viscosity grades; physical properties; formulae; and handling, shipping and storage instructions.

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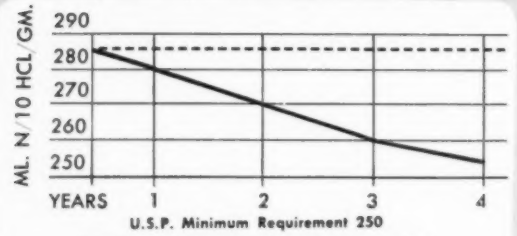

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with the precious pelt. In the beginning he had considerable trouble with the females. When the male was placed in her cage, she sank her teeth into his back. A chinchilla expert advised Dr. McCarver to spray the mating couple with Old Spice Perfume. It worked. Now there is the theory that if the male smells like she does, she is inclined to decide he is a nice fellow. And remember—Dr. McCarver tried other fragrances, too. None worked like Old Spice.

EXECUTIVE COMPENSATION IN THE DRUG AND COSMETIC INDUSTRY

(Continued from page 627)

	Per Cent of Chief Executive's Pay	
	Drugs and Cosmetics	18-Industry Average
Second Highest Paid	75 per cent	72 per cent
Third Highest Paid	61 per cent	59 per cent
Fourth Highest Paid	59 per cent	52 per cent

The relationship between the top executive's pay and that of the second, third, and fourth highest paid men is plotted in Chart 2. The line represents median pay and the dots indicate the compensation of individual executives in 13 companies that reported the pay of the three directly below the top. It should be noted that the size of the company, as measured by its sales volume, does not appear to influence the percentage relationship between the pay of the top man and that of other executives.

Among the drug and cosmetic companies, there is wide variation in the relationship between the chief executive's pay and that of his principal executives. In some companies, the chief executive receives more than twice as much as any other person in the organization, while in others, two or three officers earn nearly as much as the chief executive.

Compensation differentials between the second highest paid executive and others just below him tend to be narrow in most drug and cosmetic companies. There are, in fact, many companies in which the second, third, and fourth highest paid executives all receive about the same amount.

Between 1954 and 1955, no change occurred in the relationship between the chief executive's pay and that of the second highest paid officer. However, the median pay for the third and fourth officers was a larger percentage of the top man's pay in 1955 than it was the year before.

BEAUTY FROM WITHIN

(Continued from page 615)

probably require the administration of the entire nutritional chain. The second cause of failure with Vitamin A therapy is faulty absorption brought about by excessive use of laxatives, mineral oil, insufficient essential fats in the diet and alimentary disease. The skin is slow to respond to vitamin supplementation in deficiency states and treatment must be continued for months and sometimes years to achieve the desired

results. Impatience therefore, can be a source of disappointment in this form of treatment.

Thiamine

An insufficiency of thiamine does not directly precipitate dermatologic symptoms, or at least not those of interest to the cosmetic industry. However a lack of this catalytic compound does produce a serious impairment of the cardiovascular, nervous and gastrointestinal systems. Under such circumstances it is not difficult to visualize a general let down in health with a certain loss in skin appeal.

Riboflavin

Signs of riboflavin deficiency may be observed in the lips, mouth, skin and ocular apparatus. Effects also occur in nerve tissue, blood and the entire physiology is unfavorably influenced. We shall spotlight only cutaneous reactions. The manifestations of ariboflavinosis originate from the primary dysfunction, dyssebacea. First the sebaceous glands are excessively stimulated, secreting a superabundance of lipoidal fluid or sebum, especially in the nasal areas. Normally, this mechanism and the substance liberated was designed to serve as a skin lubricant. Excess of this lubricant or sebaceous material is genetic in the condition universally known as "oily" skin, which in turn imparts a conspicuous shine to the facial skin. Further extension of this sebaceous syndrome is characterized by the deposition of a more viscous type of sebum in the sebaceous orifices. The continued discharge of this secretion enlarges the sebaceous duct far beyond its normal size. If this material remains static and become inspissated, the sebaceous orifice is blocked and further expanded by the continued ejection of sebum from the gland. The orifice is now blocked by a sebaceous plug commonly known as a whitehead. If atmospheric dust and dirt collect and are trapped at the surface of the plug, a blackhead is formed and is so called. Either of these formations can be expressed mechanically leaving expanded or enlarged hair follicle or pores which do not return to their normal dimensions.

Clogged sebaceous glands and ducts constitute a fertile field for invading micro-organisms, and if such takes place, the infected system is now termed a comedone which is a single acne lesion. Thus we have traced the birth of the most dreaded of all the hazards of adolescence, acne.

The writer estimates from personal observations that at least 75 per cent of all females will evidence conspicuous or enlarged pores with or without deposits therein, particularly on the nasal areas. As was previously mentioned, 111 million dollars annually is the price paid for agents with which to hide or mitigate or reduce these unsightly deteriorations. Riboflavin deficiency also produces symptoms in the lips which consist of pallor and maceration of the mucosa at the angles of the mouth and which progress to transverse fissuring or chapping especially during the winter

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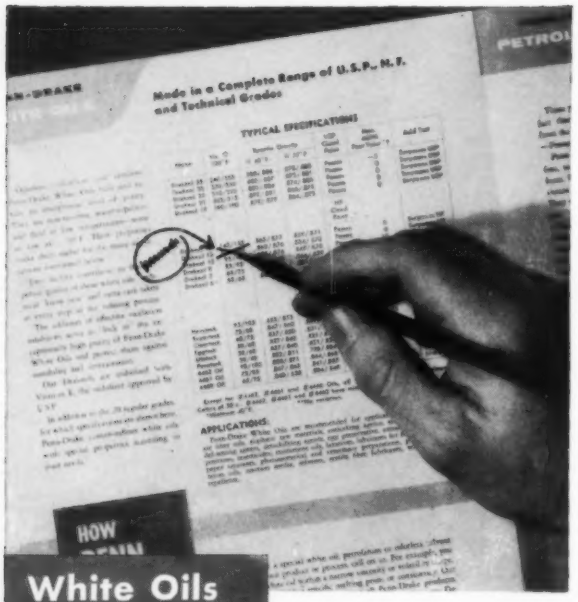

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months. Collectively these lesions have sired a three million dollar business in the sale of lip balms and protectants, used therapeutically not cosmetically.

Nicotinic Acid or Nicotinic Acid Amide

This nutritional catalyst is another salient link in the chain of bio-chemicals essential for cellular oxidation-reduction reactions. The three cardinal aspects of niacin deficiency are diarrhea, dementia and dermatitis. Only the latter is of interest herein. The symptoms are initiated by a burning, stinging sensation in the involved areas, usually on the back of the hands, forearms, elbows, knees, perineal region and other surfaces exposed to irritation. The skin becomes rough, cracked, scaly and reddened. In advanced cases, there is desquamation or peeling exposing raw areas that can easily become infected. Lip and mouth lesions may or may not be present. In its mild form, pellagra may not be detected for years. Sunlight invariably aggravates the described dermal signs.

Vitamin B_6; The Pyridoximers; (Pyridoxine, Pyridoxal, Pyridoxamine)

This member of the vitamin B complex or water soluble group has been known since 1934. Only recently has the need for Pyridoxine been conclusively demonstrated in the human economy. Deficiency symptoms are closely allied with or similar to that engendered by riboflavin and niacin deprivation. A seborrheic dermatitis commencing in the naso-labial folds with some erythema and itching is the most frequent dermatologic reaction, and which may spread to other parts of the face and body. Jolliffe et al[3] suggests that pyridoxine may be influential in the correction of deranged fatty acid or lipid mechanism. It is also suggested that B_6 may have a direct functional effect on the sebaceous glands of the skin. A marked reduction in the oiliness of the skin was noted following the administration of the pyridoxine in a series of clinical trials in the treatment of acne. Schreiner et al[4] experimentally induced pyridoxine deficiency with subsequent seborrheic dermatitis. These cases responded specifically to pyridoxine supplementation. On the other hand, clinical cases of seborrheic dermatitis of the sicca type failed to show any significant improvement with pyridoxine therapy. Failure in these latter subjects was probably due to accompanying inadequate levels of riboflavin and niacin, which was not corrected by restoring only B_6 to the diet. In the experimental group, pyridoxine insufficiency only, was induced by feeding the pyridoxine antagonist, 4-desoxypyridoxine.

The full role of pyridoxine is not yet appraised. Present data seems to indicate that B_6, simultaneously with riboflavin is instrumental in the normal functioning of the sebaceous glands. A hypo or hyper deviation from normal precipitates abnormal dermatologic syndromes which were brought into focus earlier in the discussion. Therefore any vitamin therapy em-

ployed to correct dyssebacea must include pyridoxine in therapeutic amounts if complete success is to be attained.

Biotin

Biotin is a member of the water soluble group of vitamins, is widely distributed in nature and apparently can be synthesized in the human intestine. A naturally occurring deficiency is most unlikely. Sydenstricker et al[5] report that when humans are experimentally impoverished of this compound, the symptoms are primarily a fine, branny type of scaling of the face, arms and legs. Biotin is included in this review only because deficiency signs are somewhat similar or possibly related to that of other members of the B complex group.

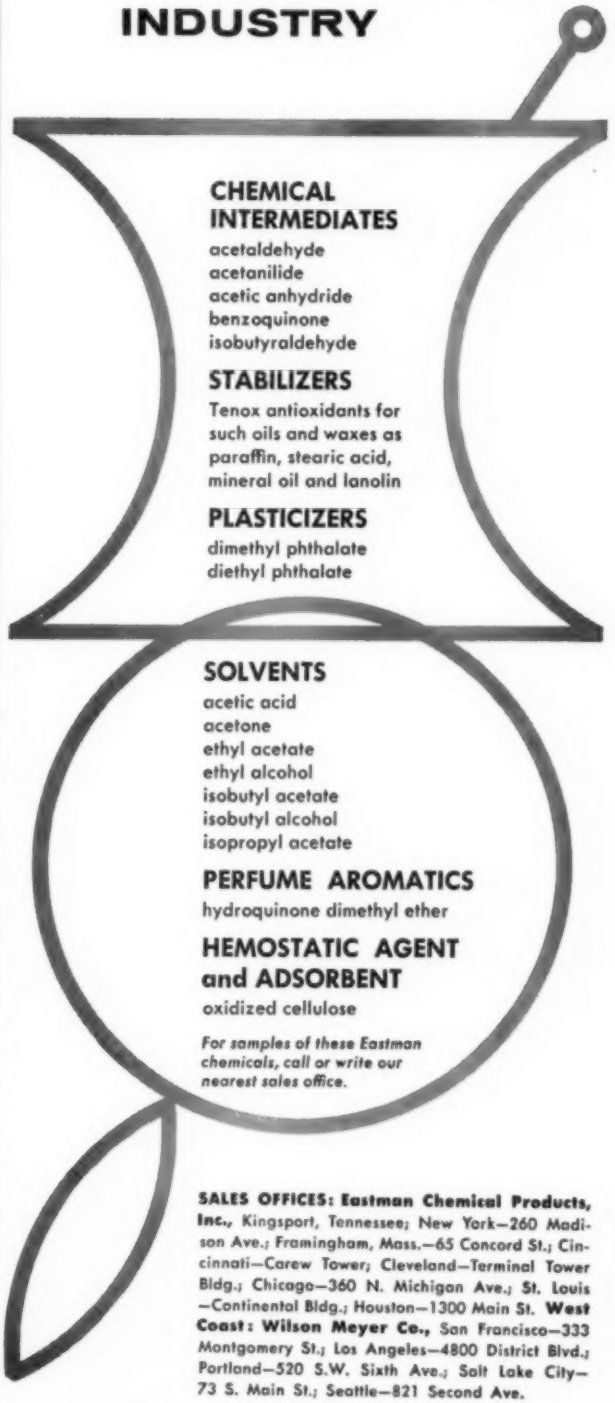
Ascorbic Acid: Vitamin C

This vital dietary component enters into many direct and remote physiologic processes. The entire gamut of its biochemical activities are far from being fully understood. One[6] of the most important performances ascribable to Vitamin C is in the formation and maintenance of intercellular material such as the collagen of all fibrous tissue, the cement substance of endothelial tissue and the matrix of bone dentin and cartilage. There are a few dermatologic effects of an insufficiency—the degree and duration of same governing the intensity of symptoms. The[7] earliest peripheral manifestation is the perifollicular hyperkeratotic papule which occurs on the backs of the legs and buttocks and later on the upper extremities. Fragmentation and breaking of the hairs in these follicles will also be observed. Petchiae or minute hemorrhages will be noted around the hyperkeratotic hair follicles. Probably one of the simplest diagnostic signs for ascorbic acid starvation is the appearance of black and blue marks anywhere on the body produced by impacts so mild as to be more or less unknown to the subject. These black and blue marks are merely the extravasation of blood escaping from ruptured capillary walls. The vasculature involved in this phenomenon has been substantially weakened by a lack of intercellular cement, which in turn is the direct effect of an insufficient ascorbic acid intake.

Unsaturated Fatty Acids: Linoleic, Linolenic and Arachidonic

Simultaneously with being the richest source of calories of all foodstuffs, the fats also serve in the maintenance of a normal integument although the exact mechanism is vague. A number of seemingly relevant facts have been established; infants[8] on a fat-free diet soon developed an eczema which was rapidly cured when certain fats were restored to the diet; rats on limited fat rations evidenced a characteristic dryness and scurfiness on the dorsal surfaces of the hind feet; skin lesions produced by pyridoxine and essential fatty acid deficiencies are similar, and furthermore the presence of these fatty unsaturates makes it

FOR THE DRUG AND COSMETIC INDUSTRY



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difficult to induce a typical pyridoxine insufficiency syndrome. The foregoing strongly implies some sort of relationship between certain fats and Vitamin B_6; therefore it is reasonable to assume that the role of these fats is of formidable consequence.

In extension of the above, Carlson[10] ventures, quote, "processing such as hardening (hydrogenation), of the more liquid fats so changes the essential fatty acids that although they are still useful as a source of energy, they can no longer perform their specific role in human life and nutrition." He also adds, "unless minimum amounts of fatty acids are present in the diet, the skin becomes scaly and inflamed, growth is interfered with, reproductive processes are impaired and kidney disorders may result."

America's[11] total fat consumption is 45 pounds per capita per year, consisting of the following: butter, 7.2 lbs.; margarine, 6.4 lbs.; lard, 10.1 lbs.; shortening, 11.3 lbs.; other edible fats and oils, 10 lbs. The margarine and the shortening, together comprising 17.7 lbs. may be reckoned as being practically 100 per cent saturated. The balance of the aggregate consumption may or may not be capable of supplying the necessary unsaturated fatty acids. Therefore, not withstanding our huge fat intake, there is some suspicion we may still be starved for certain fatty unsaturates absolutely requisite for optimum dermatologic health.

This discussion can only hope to excite interest in the relationship between diet and dermatologic deterioration. In view of the almost universal prevalence of skin problems among the female population and in recognition of the role played by nutrition in both the cause and correction of these disturbances, the cosmetic counter becomes a new and vast theater for the promotion and sale of nutritional bio-chemicals.

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SOCIETY OF COSMETIC CHEMISTS SEMINAR

(Continued from page 625)

Tonofibrils within these cells lose their filamentous ultrastructure. These transformed fibrils, arranged in a loose three-dimensional network, are the exclusive component of cells of the s.lucidum. Cells of the s.corneum consist of a condensed mass of the material making up the network of the s.lucidum. Cell membranes and demosomes are clearly visible in the s.corneum with the dense band within the desmosome

disappearing with the result that the cell membranes are brought even closer together.

These observations indicate that the matrix (keratin) of the s.corneum arises directly through a transformation of tonofibrils in the s.granulosum.

This transformation involves a lateral bonding and molecular rearrangement of the tonofilaments which were synthesized in the basal cell layer. Intercellular bridges are similar to those found in other cell types where there is a particular need for cell cohesion but undergo specific changes in the upper layers of the epidermis which must be related to the control of desquamation and hence must be significant in pathologic alterations of normal desquamation.

Peter Flesch of the Department of Dermatology, University of Pennsylvania presented a paper on *Biochemical Data on Physiologic and Pathologic Epidermal Keratinization.* Epidermal keratinization is one of many processes occurring during the development of the horny layer. Because of the thinness of the epidermis, satisfactory separation of the individual components during the various stages of this process is not possible.

At present the best working theory to account for the changes during keratinization is as follows: Keratinization is a two-step process. The first step is the formation of a fibrous precursor in the cellular layer of the epidermis, with little or no sulfur. This precursor then combines with sulfur-containing amino acids, polypeptides or proteins to form the consolidated keratin.

Studies of pathologic keratinization are often based on the erroneous assumption that an anomalous horny layer necessarily reflects a faulty process of keratinization. About one-fifth of the horny layer consists of non-keratinous, water-soluble substances, especially free amino acids. Many of these components have a strong water-binding ability. The reduced amino nitrogen and water-binding ability of some pathologic scales is due to alterations in the non-keratinous portion of the horny scales. Whether or not there are qualitative changes in the keratinous portion of the scales as well, has not yet been decided.

Samuel M. Peck of Columbia University and Arthur Glick of Mount Sinai Hospital presented *A New Method for Measuring the Hardness of Keratin.* Two instruments have been devised for the in vivo and in vitro measurements of the hardness of keratin, the former called the Tonometer, the latter the Durometer.

The findings of Blank concerning the role of the water content in the hardness of keratin have been studied with these instruments. His findings have been confirmed. Preliminary studies indicate that especially the in vitro instrument lends itself admirably to investigations concerning the role of various materials used in cosmetic formulations to soften the skin both in the presence and absence of water. Tested substances included a de-waxed, fat-soluble lanolin fraction.

A number of experiments were reported to illustrate

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some of the possible uses of the instruments. The experiments were not intended to indicate final conclusion of the role of the various chemicals as carriers of water to combat dryness of keratin, but indicated that the lanolin fraction, as a water-in-oil emulsion, had useful skin-softening power. Once the potentialities of the instruments have been thoroughly evaluated, they will provide additional tools to give finer measuring devices to study the relative merits of lanolin and the various fractions of lanolin as carriers in making water available to dehydrated keratin.

Frederick R. Eivich of the Polytechnic Institute of Brooklyn was moderator for the section on the **Theory and Application of Viscosity in Cosmetics,** with George J. Rosenblit of the Bendix Airation Corp., Ronwald Bulas of Interchemical Corp., Frank D. Dexter of Bakelite Co. and S. V. Lieberman of Bristol-Myers Products Division as guests.

Alden B. Bestul of the National Bureau of Standards discussed *Capillary viscometry.* Observed quantities in capillary viscometry are rate of flow and pressure drop through the capillary. Methods were reviewed by which these observed quantities are used to calculate derived quantities such as viscosity, shearing stress and rate of shear. Procedures were discussed for both Newtonian and non-Newtonian flow.

Measurement of the observed quantities was discussed for different categories of capillary viscometers and for several specific examples of these categories. Included, among others, were viscometers of the gravity (e.g. Ostwald), controlled pressure (e.g. Bingham) and controlled flow (injection) types. Special viscometers for special purposes were discussed, such as the horizontal capillary for small pressure heads (e.g. Tsuda), coiled capillary for slow flow (e.g. Stabin) and rugged viscometers for high viscosity, pressure head and flow rate (e.g. McKee).

A comparison was made of the advantages and disadvantages of capillary viscometry in general and of certain specific capillary viscometers as compared with certain other types of viscometry. This comparison considered both the ease and reliability of measuring the observed quantities and of interpreting them in terms of rheological and molecular quantities, for both Newtonian and non-Newtonian materials.

Walter K. Asbeck of Carbide and Carbon Chemical Co. presented a paper on *Rotational Methods of Flow Measurement.* A large number of rotational viscometers, or those working on the rotational principle have been devised and are finding scientific and industrial usage. However, many of these, because of their construction or means of operation, do not exploit the possible inherent advantage of rotational instruments in establishing a constant shear gradient during viscosity measurements.

Even with instruments having constant shear gradients, the shear velocity range is often insufficient in a single instrument to allow extraction of all data desirable for scientific or industrial application. This is primarily due to the fact that rheological theory is not at present sufficiently advanced to permit reliable extrapolation of data from one shear range into another.

For many industrial applications, where viscosity measurements are employed for quality control, simpler rotational viscometers have often proven adequate. However, these instruments are usually not capable of indicating why a product may not be up to specification standards.

The theory of various rotational instruments, as well as the practical functioning and limitations of apparatus working in the very low, medium and very high shear ranges was described.

Wilfred Roth, of the Roth Laboratory for Physical Research discussed *Ultrasonic Methods of Flow Measurement.* The ratio of stress to particle velocity—the so-called wave impedance—was shown to be related in a rather simple way to the viscosity and rigidity properties of the material.

Ultrasonic frequencies of vibration have been employed to measure this wave impedance in order to achieve means of viscosity measurement and control. Some of these methods have resulted in instruments suitable only for laboratory use but others have resulted in practical instruments for industrial applications. A general description of some of these approaches was given and a detailed discussion of an automatic and continuous viscosity measuring device that was developed primarily for industrial use was presented.

A discussion of the relation between the properties measured by ultrasonic approaches as related to the properties that one normally desires information about was given. Applications in which ultrasonic instruments do measure properties of interest and those for which ultrasonic methods are not well suited were discussed.

Ruth N. Weltman, of the National Advisory Committee for Aeronautics presented *Interpretations and Applications of Flow Measurement.* The flow characteristics of different types of materials and the results which are obtained from flow measurements of these materials with a rotational concentric-cylinder and a capillary-tube viscometer were discussed. Suggestions were made to use a sequence of controlled flow measurements to enable the interpretation of the more complicated flow behavior of time-dependent non-Newtonian materials. Such flow measurements which were obtained with an automatic rotational viscometer were presented for an all-purpose cream and a tooth paste. They were interpreted to yield characteristic flow properties. The application and usefulness of flow measurements for product research and control was emphasized by discussing the changes in flow properties with changes in formulation and by indicating how similar changes can be caused by variations in the manufacturing process. The ap-

plication of the flow properties to the design of pipelines for the transport of non-Newtonian materials was demonstrated. Example calculations were made for the tooth paste and a pigment suspension.

The final session on **Modern Emulsification Techniques** was moderated by S. D. Gershon of Lever Brothers Co., with Donald M. Skanen of the University of Connecticut School of Pharmacy and S. J. Strianse of Shulton, Inc., as guests.

John P. Bolanoski of the Girdler Co., discussed *Continuous Processing of Cosmetic Products in Volator Apparatus.* The effects of continuous emulsifications as they pertain to premixing or metering techniques, consistency, emulsion stability, were discussed as functions of time, temperature and mechanical work. In addition, uniformity, quality control, economical advantage and automation were taken into account.

The techniques of determining the process parameters for materials which are semi-plastic or completely non-pourable as a result of emulsification, hold the greatest potential for application studies. Comparison of a continuous operation versus a batch operation reveals the effect and importance of temperature and mechanical work. In short, this is a discourse of studies made on how to produce a better product by making stable emulsions in a matter of seconds as compared to minutes, using precise temperature, time and mechanical work control.

Wilfred Roth discussed *Ultrasonic Emulsification: Theory, Applications and Limitations.* For the past 30 years much has been reported regarding the use of ultrasonic energy for the preparation of emulsions. In general, where ultrasonics has been successful emulsions have been prepared faster and with more uniform particle size than with other methods. However, there are many instances where ultrasonic irradiation has not been successful. Furthermore, in many cases where ultrasonics has been useful in the preparation of emulsions on a laboratory scale similar methods have not proved to be economic on a production basis.

Although the detailed theory of ultrasonic emulsification is not clearly understood much of the general principles involved are quite clear. A discussion of the present understanding of ultrasonic emulsification was presented. Much debate concerning necessary energy levels, optimum frequency ranges and types of transducer mechanisms to be employed to achieve practical results has taken place in the past two decades. A summary of some of the major considerations involved in this broad question was given. Descriptions of commercially available apparatus as well as some interesting new possibilities in this field was given. Factors effecting the efficiency of equipment for producing large amounts of ultrasonic power as well as the initial and operating cost of such equipment was discussed. Ways in which available equipment might be installed on a practical basis was also presented.

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(*Continued from page 619*)

fowl. Briefly, imprinting is an extremely rapid form of learning which takes place during the early life of some organisms and which is possible only during a very brief period in their life. The form in which this takes place in mallards is that they quickly learn to follow a moving object exposed to them during a brief period of time. Imprinting of mallards during the critical age (12 to 17 hours) is almost impossible when under the influence of the drug. The animals are, however, quite active and behave normally. Animals imprinted at the critical age without the drug will show the response of following even though they are tested for following under the standard dosage of meprobamate. Animals given a standard dose of meprobamate at 24 hours cannot be imprinted at 26 hours even though they do not show the fear and avoidance behavior ordinarily exhibited at that age. Meprobamate appears to extend the critical age for imprinting. Animals given meprobamate at 12 hours can be imprinted fairly successfully at 24-26 hours when the effect of the drug has worn off.

In the final paper of the first morning session, C. E. Pfeiffer discussed the *Effects of Tranquilizers on Conditioned reflexes.* Previous studies have shown that reserpine, chlorpromazine, arecoline, pilocarpine or eserine will each in suitable dosage inhibit the conditioned avoidance response (CAR) of the rat or the monkey. Reserpine, when used in the rat to inhibit the CAR, leaves a residual effect for as long as four weeks after treatment. Arecoline, in the monkey protected by diphenhydramine methyl bromide, inhibits the CAR as does arecoline in the rat. Drugs which do not specifically inhibit the CAR are pentobarbital, Frenquel and meprobamate. Tyzine, which lowers the body temperature of the rat, does not inhibit the CAR.

E. F. Gildea presided over the session on **The Treatment of Psychoneurotic Conditions,** five papers being presented.

In their paper *The Effects of Ward Tension on the Quality and Quantity of Tranquilizer Utilization,* M. Sabshin and S. B. Eisen concluded that chlorpromazine was the drug of choice on the most disturbed closed unit while meprobamate was the drug of choice on the least disturbed closed ward.

L. Alexander discussed *The Differential Effects of Tranquilizers.* The new tranquilzing drugs (chlorpromazine and reserpine) are capable of relieving states of agitation and over-activity, especially manic psychoses and organic-toxic states, in which secondary inhibitory or disorganizing effects upon the ego are slight or readily reversible.

A number of additional new drugs has become available, which differ from the tranquilizing drugs in varying degrees. These can be divided into three groups: 1) relaxant drugs, 2) ataractic (de-confusing) drugs, and 3) anti-phobic drugs. The action of relaxant medication, such as exemplified by the new drug, meprobamate, is similar to that of the tranquilizing drugs.

except that its inhibitory effect is less profound. This is an advantage in the psychoneuroses. Because of its less profound inhibitory action meprobamate also does not tend to precipitate or aggravate depression; but for the same reason it is also much less effective in the treatment of psychotic states of excitement.

Anti-phobic medication, as exemplified by Benactyzine, is fundamentally different from tranquilizing medication in that it is anti-cholinergic, while the tranquilizing drugs are anti-adrenergic. It selectively abolishes "neurotic" inhibitory avoidance responses engendered by stress, without inhibiting the orienting response and conditional reflex responses. This drug has proved itself to be a mild anti-depressant in clinical states of depression in human beings, both of manic-depressive and involutional type.

In the *Treatment of Anxiety States with Meprobamate* by W. A. Osinski, meprobamate was administered to 312 ambulatory patients. Meprobamate showed effectiveness in psychoneurotic reactions of the anxiety type. Anxiety of recent origin appeared to respond better than chronic type. A large number of cases that had failed to respond to other forms of treatment including barbiturates, chlorpromazine, promazine and reserpine responded well to therapy with meprobamate. The combination of meprobamate with amobarbital sodium in certain cases seemed to be of greater value than either drug alone. The only untoward reactions reported by patients were drowsiness, transient headache, dizziness and fatigability.

The Use of Meprobamate and Other Tranquilizers in Air Force Personnel was reported by N. M. Dixon. Clinical observations on 1100 patients exhibiting diversified functional and organic problems were made in an attempt to evaluate the therapeutic effectiveness of meprobamate. These observations revealed that valuable therapeutic benefits were obtained primarily in the fields of muscular head pain, psychogenic aspects of motion sickness, acute insomnia related to functional factors, skeletal muscle syndromes, the functional overlay of organic disease states, and acute anxiety and tension states.

Meprobamate was found to be safe, non-toxic and essentially free from unpleasant side effects.

H. A. Dickel, J. Wood and H. H. Dixon, *Electromyographic Studies on Meprobamate and the Working, Anxious Patient*, in treating cases with increased neuromuscular tension (a usual finding associated with the anxiety states) used a cathode ray oscilloscope with photographic recording to determine objectively any degree of change or improvement that might be present, and to countercheck any statements the patients themselves might make. This allowed for the evaluation of the practical use of any drug. All the patients observed were typical anxiety tension states who were ambulatory patients; each one was working at a profession or skilled task. The findings were of unusual interest for although many of the patients (40-50 per cent) showed no clinical improvement, and as many expressed no relief in their anxiety per se, they showed

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definite lessening in the degree of "neuromuscular tension" present, with observable, additional ability to coordinate and "relax" at a given time.

The session on **The Treatment of Psychiatric and Other Conditions with Meprobamate,** presided over by H. C. Solomon, began with a paper by L. Hollister, H. Elkins, E. G. Miler and R. St. Pierve, *Meprobamate in Chronic Psychiatric Patients.* One hundred thirty-nine hospitalized psychiatric patients were treated with meprobamate for two to twelve months. The schizophrenic patients had been ill for one to 33 years, the median duration being ten years. The results from meprobamate in this group were not as good over-all as with chlorpromazine or reserpine. Occasional patients improved more with meprobamate than with either or both of the other drugs. Patients with anxiety reactions had been ill from three to 38 years, the median duration being 11 years. Alcoholism was a major complicating factor in 15 patients. Meprobamate was better than reserpine and equal to chlorpromazine in this group of patients. Treatment of depressions of various types with meprobamate was most gratifying. Eight patients were markedly improved, and eight moderately improved. Meprobamate was much superior to either reserpine or chlorpromazine for these patients. Only one of 11 patients with chronic brain syndromes was significantly improved. No drug has been able to accomplish much with patients suffering from personality disorders and meprobamate is no exception. Side reactions were few and minor. No major complications occurred. In regard both to minor and major reactions, meprobamate was clearly superior to reserpine or chlorpromazine.

W. H. Bower, *Meprobamate in Senile Psychoses,* reported that meprobamate was found to be a sedative of some usefulness in the treatment of a small series of patients with senile psychoses. The benefits included: decrease of angry outbursts, decrease of resistiveness to care, increase of participation of the patient in his own care, improvement of sleep, decrease of wandering, decrease of noisiness, increase of congeniality, and decrease of tendency to fight needed restraint.

The Role of Meprobamate in Post Operative Surgical Care, by T. A. Lanphier reported that a major and frequent obstacle in the path of successful recuperation following surgery is the depression and anxiety often experienced by the patient during the convalescent period. This mood often interferes with early ambulation, which is of vital importance to prevent such complications as phlebitis, ileus, hypostatic pneumonia, etc. A drug that helps reduce postoperative anxiety and depression without danger of serious complications and side reactions would be of great value to the medical profession. Meprobamate is such a drug. There were no so-called cumulative effects or dermatological reactions, and no effect on the autonomic nervous system, the heart and respiration. Blood counts and urinalyses showed no toxic

effects. There were a few instances of drowsiness, and four patients complained of gastric upset or headache.

A Study of Meprobamate in Alcoholism was made by L. A. Greenberg, D. Lester, A. Dora, R. Greenhouse and J. Rosenfeld. The results of this study were clear. In both the acutely disturbed hospital patients and chronic outpatients receiving only placebo there was a measurable and not unexpected improvement during the time that hospital handling or contact with the therapist was maintained. Among the hospital patients receiving meprobamate recovery was more pronounced in those admitted in a mildly acute state; those admitted in an extremely disturbed state responded minimally and usually required other medication. Among the outpatients, none of whom were acutely disturbed, after a week of oral meprobamate therapy there was a considerable improvement as compared with placebo in terms of such symptoms as psychomotor agitation, anxiety, irritability, insomnia, anorexia, craving, depression and demand for medication.

A. P. Friedman reported on *The Treatment of Chronic Headache with Meprobamate*. This study was made to evaluate the effectiveness of Meprobamate on patients with chronic headache. Over 200 patients were given the medication during a fourteen month period. The patients were divided into three groups according to the diagnostic classification of their headaches, as follows: (1) migraine, (2) tension, (3) hypertension. Symptoms were present for more than three years in most of the patients.

Meprobamate was used as a preventive or prophylactic form of therapy and was not given to relieve the symptoms in an attack of headache. The drug was well tolerated and only mild side effects, including nausea and sleepiness, were noted in a few patients.

Results with Meprobamate indicate that it is most effective in the treatment of tension headache and less effective in migraine and headaches associated with hypertension. However, the favorable response with meprobamate must be considered in the light of favorable response to treatment with placebos.

Tranquilizing drugs cannot be the sole form of therapy used in the treatment of chronic headache. They are of value in reducing emotional tension and allow the patient to handle stressful situations more effectively.

The Clinical Eraluation of Meprobamate in Disturbed and Pre-Psycholic Children was discussed by H. R. Litchfield. It appears that meprobamate is a very effective agent in treating the symptoms of irritability, sleeplessness and restlessness in early infancy and the older child. The older child apparently loses his apprehension and relaxes sufficiently so that his ability to behave within a normal pattern is very evident. These patients also seem to benefit from the standpoint of their physical aspect, they seem to eat better and sleep better and become cooperative. Meprobamate apparently inhibits the functions of the central nervous

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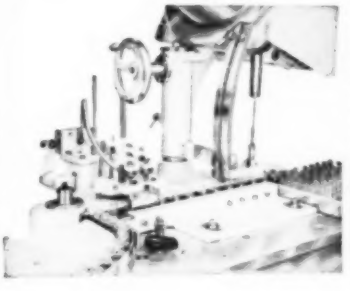

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system. The action produces a tranquilizing effect without loss of consciousness or disturbance of the mental faculties.

The final session **Use of Meprobamate in Muscle Spasm** was under the chairmanship of H. H. Mervitt.

As reported in the paper *The Value of Muscle Relaxants in Disorders of Muscle Tone* by E. B. Schlesinger, an attempt has been made to explore the possibilities of drug therapy in these clinical disorders, not to the exclusion of other forms of therapy, but with full recognition of all possibilities in a given case. Objective observations on effects were impossible to obtain by clinical observation of patient by doctor. A system was evolved of gauging net effect by collecting information from all involved workers, including at minimum the nurse, physical therapist, psychologist, industrial supervisor and social worker. The exhibition, withdrawal, and exact nature of drug were outside the daily working knowledge of all but the nurse. In this fashion, the data collected tended to have fewer defects of personal clinical experimentation. Drugs used in this study ran the spectrum of so-called muscle relaxants, from the peripheral depressants such as curare to the currently popular ataraxics.

R. T. Smith discussed *Use of Meprobamate and Other Muscle Relaxants in Muscle Spasm Due to Rheumatic Conditions.* The major cause of disability in the various chronic, and to a lesser extent, acute rheumatic disease is muscle spasm rather than pain from the unique specific lesions. Relief of pain by the administration of analgesics and steroids has been only partially successful since the symptom of stiffness was effected very little or not at all. Muscle relaxant drugs have proved beneficial in overcoming this disabling symptom and provided greater relief for the rheumatic patient.

Use of Meprobamate in the Treatment of Skeletal Muscle Spasm was reported by J. S. Neviaser and S. H. Eisenberg. The authors are reporting on a series of over one hundred patients in which the skeletal muscle relaxing potential of meprobamate was utilized. Clinicians charged with the responsibility of caring for patients suffering disease in which marked muscular spasm predominates have long sought a medication which was effective, long acting, non-toxic and could be administered orally. Meprobamate was found to be the best muscle relaxant presently available. Relief was provided to nearly all the patients studied and the more dramatic results were noted in those patients suffering from acute conditions manifesting marked muscle spasm. The drug was found to be of inestimable value in the aged where massive cortisone therapy is frequently contra-indicated and skeletal muscle relaxation was desired. Meprobamate did not interfere with the vital functions, cause sodium retention or create autonomic imbalance.

H. E. Gillette discussed the *Use of Meprobamate in Cerebral Palsied Patients.* Meprobamate was found to be most useful in reducing muscle tension in the

child whose damage lay in the extrapyramidal system. There were, however, a significant number of cases with pyramidal tract involvement who obtained benefit.

The *Effect of Meprobamate on the Basal Ganglia in Children* was reported by H. W. Baird, E. G. Szekely, H. T. Wycis and E. A. Spiegel. Clinical studies on 60 children with various neurologic conditions suggest that meprobamate may be of benefit chiefly in two conditions, infantile myoclonic seizures and certain behavior disorders. Apparently there is a different susceptibility of the various parts of the extrapyramidal system to this drug. In man, pathologic conditions of the basal ganglia may be latent and abnormal discharges from the basal ganglia may appear only after the administration of certain drugs, such as meprobamate.

DRUGS AND CHEMICALS 1955

(Continued from page 628)

Barbital figures were: production 1955—25,000 pounds, 1954—24,000 pounds; sales 1955—17,000 pounds, 1954—20,000 pounds; value 1955—$59,000, 1954—$78,000.

Secobarbital figures were: production 1955—81,000 pounds, 1954—78,000 pounds; sales 1955—25,000 pounds, 1954—19,000 pounds; value 1955—$149,000, 1954—$145,000.

Vitamins

Production of vitamin A in 1955 totaled 170,000 pounds, or 170,429 billion USP units, up from 116,000 pounds, or 103,845 billion USF units in 1954. Sales for 1955 totaled 156,000 pounds, or 162,348 billion USP units, up sharply from the 1954 figure of 98,000 pounds, or 94,223 billion units. Value of 1955 sales totaled $15,344,000, up from $11,785,000 for 1954.

Production of thiamine salts in 1955 totaled 234,000 pounds, down from 259,000 in 1954. However sales in 1955 rose to 180,000 pounds, from 166,000 pounds in 1954. Value of 1955 sales was down to $7,048,000 from $8,764,000 in 1954.

Production, sales, and value of sales were all higher in 1955 for riboflavin for human use. The figures were: production 1955 — 136,000 pounds, 1954 — 97,000 pounds; sales 1955—95,000 pounds, 1954—69,000 pounds; sales value 1955—$3,349,000, 1954—$2,726,000. Riboflavin for animal and poultry use figures were: production 1955—175,000 pounds, 1954—181,000; sales 1955—123,000 pounds, 1954—118,000 pounds; sales value 1955—$3,065,000, 1954—$3,376,000.

Pyrodoxine figures were all higher. They were: production 1955 — 30,000 pounds, 1954 — 24,000 pounds; sales 1955—23,000 pounds, 1954—18,000; sales value 1955—$4,448,000, 1954—$4,157,000.

Production of vitamin B_{12} (all grades) totaled 688 pounds in 1955, compared with 422 pounds in 1954. Sales for 1955 were 357 pounds, valued at $20,614,000

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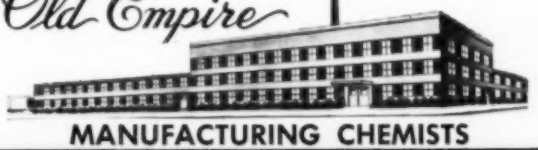

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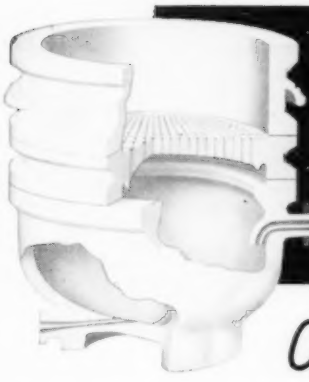

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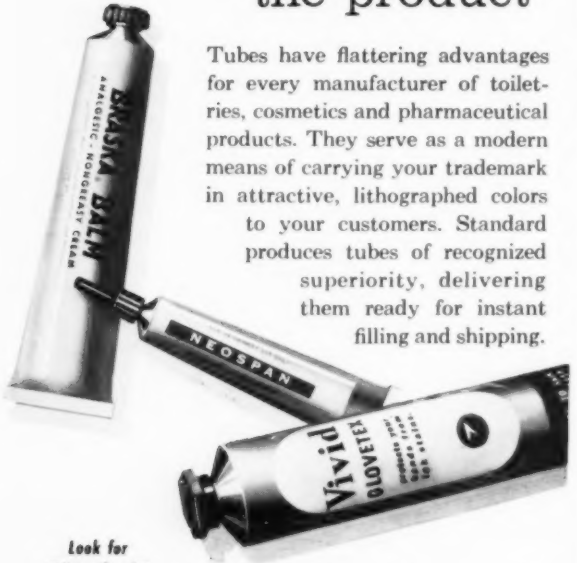

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Niacin production figures for 1955 were all higher. They were: production 1955—2,318,000 pounds, 1954—2,206,000; sales 1955—1,961,000, 1954—1,632,000; sales value 1955—$6,344,000, 1954—$5,812,000.

Ascorbic acid and salts figures were also all higher. They were: production 1955—2,121,000 pounds, 1954—1,834,000; sales 1955—1,939,000 pounds, 1954—1,834,000 pounds; sales value 1955—$13,481, 1954—$13,326,000.

Pantothenic acid and salts figures were also all higher: production 1955—555,000, 1954—221,000; sales 1955—264,000, 1954—128,000; sales value 1955—$3,225,000, 1954—$1,058,000.

Vitamin K figures were all lower: production 1955—4,000 pounds, 1954—6,000 pounds; sales 1955—2,000 pounds, 1954—3,000 pounds; sales value 1955—$29,000, 1954—$109,000.

Only production figures are given for sulfa drugs, and these are sharply lower for 1955 with a production of 2,767,000 pounds, against 4,157,000 for 1954.

Only production figures are given for amphetamine base also: 1955—57,000 pounds, 1954—45,000 pounds.

Reserpine figures are given for 1955: production, 1,000 pounds; sales, 295 pounds; sales value $1,416,000; value per pound, $4,800.

Para-aminobenzoic acid salts figures were all higher: production 1955—162,000 pounds, 1954—114,000 pounds; sales 1955—161,000 pounds, 1954—114,000 pounds; sales value 1955—$357,000, 1954—$253,000.

Flavor and Perfume Materials

Figures on perfume and flavoring materials show anethole figures up: production 1955—1,397,000 pounds, 1954—934,000 pounds; sales 1955—1,392,000 pounds, 1954—1,024,000 pounds; sales value 1955—$1,563,000, 1954—$792,000.

Anisaldehyde figures show production up in 1955 at 196,000 pounds, against 189,000 pounds in 1954. However, sales and dollars were lower: 1955 sales—153,000 pounds, valued at $284,000; against 1954 sales of 163,000 pounds, valued at $321,000.

Benzyl acetate figures were all lower: production 1955—432,000 pounds, 1954—624,000; sales 1955—496,000 pounds, 1954—564,000 pounds; sales value 1955—$268,000, 1954—$309,000.

Benzyl salicylate figures rose: production 1955—57,000 pounds, 1954—40,000 pounds; sales 1955—50,000 pounds, 1954—40,000 pounds; sales value 1955—$67,000, 1954—$53,000.

Eugenol production and sales value were off but tonnage was up: production 1955—133,000 pounds, 1954—140,000 pounds; sales 1955—133,000 pounds, 1954—120,000 pounds; sales value 1955—$305,000, 1954—$322,000.

Isobutyl phenylacetate figures were all up: production 1955—33,000 pounds, 1954—32,000 pounds; sales

1955—30,000 pounds, 1954—24,000 pounds; sales value 1955—$36,000, 1954—$30,000.

Methyl cinnamate production was up but sales and dollar volume were lower: production 1955—54,000 pounds, 1954—50,000 pounds; sales 1955—49,000 pounds, 1954—51,000 pounds; sales value 1955—$63,000, 1954—$65,000.

Methyl salicylate figures were all higher: production 1955—3,130,000 pounds, 1954—2,898,000; sales 1955—3,398,000 pounds, 1954—2,807,000 pounds; sales value 1955—$1,623,000, 1954—$1,327,000.

Phenylethyl acetate production was lower but sales and value were up: production 1955—49,000 pounds, 1954—54,000 pounds; sales 1955—43,000 pounds, 1954—36,000 pounds; sales value 1955—$50,000, 1954—$46,000.

Citral production and tonnage were lower, but sales value was higher: production 1955—46,000 pounds, 1954—51,000 pounds; sales 1955—41,000 pounds, 1954—46,000 pounds; sales value 1955—$184,000, 1954—$157,000.

Citronellol figures were: production 1955—201,000 pounds, 1954—223,000 pounds; sales 1955—193,000 pounds, 1954—190,000 pounds; sales value 1955—$673,000, 1954—$445,000.

Geraniol production for 1955 totaled 462,000 pounds, against 417,000 pounds in 1954; sales for 1955 totaled 427,000 pounds, against 429,000 pounds for 1954; and sales value totaled $1,186,000 for 1955, against $736,000 for 1954.

Geranyl acetate figures were all up: production 1955—29,000 pounds, 1954—22,000 pounds; sales 1955—26,000 pounds, 1954—24,000 pounds; sales value 1955—$85,000, 1954—$59,000.

Hydroxycitronellal production and sales were down but value was up: production 1955—116,000 pounds, 1954—167,000 pounds; sales 1955—123,000 pounds, 1954—125,000 pounds; sales value 1955—$702,000, 1954—$502,000.

Synthetic menthol production was off, but not sales tonnage and value: production 1955—261,000 pounds, 1954—364,000 pounds; sales 1955—274,000 pounds, 1954—265,000 pounds; sales value 1955—$1,642,000, 1954—$1,602,000.

Heliotropin production was up to 307,000 pounds in 1955, from 256,000 pounds in 1954; sales in 1955 were off to 272,000 pounds, from 281,000 pounds in 1954; and sales value in 1955 was up to $981,000, from $821,000 in 1954.

Safrole production 1955 totaled 315,000 pounds, up from 256,000 pounds in 1954; sales in 1955 totaled 120,000 pounds, down from 142,000 pounds in 1954; and sales value of $154,000 in 1955 was off slightly from $156,000 in 1954.

Terpineol figures are: production 1955—2,532,000 pounds, 1954—2,481,000; sales 2,327,000 pounds, 1954—2,381,000; sales value 1955—$576,000, 1954—$498,000.

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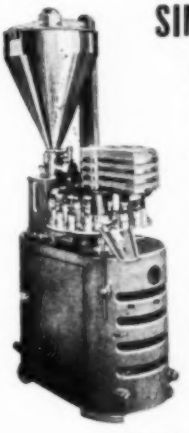

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(Continued from page 657)

Claim 1 reads as follows:

A package comprising a pressure-tight container having a valve-controlled opening and containing a composition for use in producing a stable lather consisting essentially of a liquid mixture of an aqueous soap solution and a volatile propellant in liquid phase, the composition being confined in the container under the vapor pressure of the propellant, said soap solution comprising a solution which is non-gelling at room temperatures and which contains at least about five per cent and not substantially exceeding about 30 per cent by weight of soap, said propellant being a halogenated alkane having not more than two carbon atoms and containing at least one fluorine atom, the atomic weight of each substituted halogen atom not exceeding 36, the proportion of propellant being from about 0.2 to about 0.0125 mole per 100 grams of the composition, said propellant having a vapor pressure in the range from about five to about 300 pounds per square inch gauge at 70° F. and having a solubility in water not exceeding about 32 cc. of gas to 100 grams of water at atmospheric pressure and 25° C.

On October 13, 1953, the day the patent was issued, suit was brought by Carter Products against Colgate and others in the Baltimore Federal Court. This Court upheld the validity of the patent and also found infringement and misappropriation of trade secrets, in all of which holdings it was sustained by the Court of Appeals for the 4th Circuit.

The losers then petitioned the U. S. Supreme Court to review the Circuit Court's opinion but the Supreme Court refused to look into the matter.

The two main questions of general interest are:

1. How broad is the patent?
2. Does the Supreme Court decision mean that the patent has been upheld all over the U. S. A.?

To the first question, the reader will have to decide for himself, preferably with the aid of his patent attorney. The main thing to keep in mind is that a patent covers only what is claimed and the known equivalents of the substances and conditions set forth in the claims. As regards the second question, it may be well to consider the practice of the Supreme Court in reviewing or refusing to review cases.

At the outset, when one petitions the U. S. Supreme Court in a patent case he asks what is called in legal terminology for "certiorari." The granting of certiorari is not a matter of right but of judicial discretion and the Supreme Court only grants certiorari where there are special and important reasons. Nowhere has a full statement of the pros and cons of the situation ever been fully presented but the Supreme Court has indicated in its own rules the reasons which would be considered. Insofar as patent matters are concerned, the Supreme Court may grant certiorari where one Circuit Court of Appeals has rendered a decision in conflict with that of another Circuit on the same

patent, or has so far departed from the accepted and usual course of judicial precedings, or has so far sanctioned such a departure by a lower Court to call for an exercise of the Supreme Court's power of supervision. Also, since the Carter case involves trade secrets, which might be considered a question of local or state law, certiorari may have been granted if the Supreme Court felt that an important question of local law had been decided in a way probably in a conflict with applicable local decisions.

From the fact that the Supreme Court refused to consider a review of the lower Court's decision, it can be concluded that the Supreme Court felt that none of the mentioned requirements had been met.

The net result of the refusal of the Supreme Court to act, therefore, merely leaves the parties where they were prior to the attempt to invoke the Supreme Court action.

Insofar as the writer is aware, final action has been taken in the 4th Circuit which comprises Virginia, Maryland, North Carolina, South Carolina and West Virginia. Also, suit was instituted by Mennen against Carter Products in the U. S. District Court, Southern District of New York, in March of 1955. This suit has not to the knowledge of the writer been disposed of as yet. Therefore, from the legal point of view, it is possible that the case may eventually get to the U. S. Supreme Court. This would be a likelihood in the event that the New York action resulted in a decision against the patent and this decision were upheld by the 2nd Circuit Court of Appeals. In that event, the U. S. Supreme Court might well take the case because of a conflict in the decisions of two Circuit Courts of Appeals. The foregoing statement is not intended in any way to indicate any prejudice one way or another on the part of the writer. It is merely for the purpose of pointing out a possible future contingency. Time will tell.

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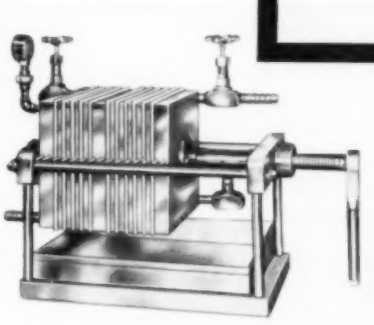

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